

# TEST REPORT

**Reference No.**..... : WTS17S1093493-4E  
**FCC ID** ..... : 2AGTF-R520  
**Applicant**..... : Distribuidora Sinn, S.A. de C.V.  
**Address**..... : Lago Zurich No.219 Piso 12, Colonia Ampliacion Granada, Del.Miguel  
Hidalgo, Mexico City, Mexico  
**Manufacturer** ..... : Shenzhen Konka Telecommunications Technology Co., Ltd.  
**Address**..... : No.9008 Shennan Avenue, Overseas Chinese Town, ShenZhen,  
P.R.China  
**Product Name**..... : Smart Phone  
**Model No**..... : R520  
**Brand**..... : RINNO  
**Standards**..... : FCC CFR47 Part 24 Subpart E: 2016  
FCC CFR47 Part 27 Subpart L: 2016  
**Date of Receipt sample** .... : 2017-07-08  
**Date of Test** ..... : 2017-07-09 to 2017-11-24  
**Date of Issue**..... : 2017-11-25  
**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:**

**Waltek Services (Shenzhen) Co., Ltd.**

**Address: 1/F., Fukangtai Building, West Baima Road, Songgang Street, Baoan District, Shenzhen, Guangdong, China**

**Tel :+86-755-83551033**

**Fax:+86-755-83552400**

Compiled by:

*Ford Wang*

Ford Wang / Project Engineer

Approved by:



*Philo Zhong*

Philo Zhong / Manager

## 2 Laboratories Introduction

**Waltek Services Test Group Ltd.** is one of the largest and the most comprehensive third party testing organizations in China, our headquarter located in Shenzhen (CNAS Registration No. L3110, A2LA Certificate Number: 4243.01) and have branches in Foshan (CNAS Registration No. L6478), Dongguan (CNAS Registration No. L9950), Zhongshan, Suzhou (CNAS Registration No. L7754), Ningbo and Hong Kong, Our test capability covered four large fields: safety test. Electronic Magnetic Compatibility(EMC), reliability and energy performance, Chemical test. Meanwhile, Waltek has got recognition as registration and accreditation laboratory from EMSD (Electrical and Mechanical Services Department), and American Energy star, FCC(The Federal Communications Commission), CPSC(Consumer Product Safety Commission), CEC(California energy efficiency), IC(Industry Canada) and ELI(Efficient Lighting Initiative). It's the strategic partner and data recognition laboratory of international authoritative organizations, such as UL, Intertek(ETL-SEMKO), CSA, TÜV Rheinland, TÜV SÜD, etc. As a professional, comprehensive, justice international test organization, we still keep the scientific and rigorous work attitude to help each client satisfy the international standards and assist their product enter into globe market smoothly.

### Waltek Services (Shenzhen) Co., Ltd.

#### A. Accreditations for Conformity Assessment (International)

| Country/Region                                                      | Accreditation Body                                                                                  | Scope                         | Note |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------------------------------|------|
| USA                                                                 | <b>CNAS</b><br><b>(Registration No.: L3110)</b><br><b>A2LA</b><br><b>(Certificate No.: 4243.01)</b> | FCC ID \ DOC \ VOC            | 1    |
| Canada                                                              |                                                                                                     | IC ID \ VOC                   | 2    |
| Japan                                                               |                                                                                                     | MIC-T \ MIC-R                 | -    |
| Europe                                                              |                                                                                                     | EMCD \ RED                    | -    |
| Taiwan                                                              |                                                                                                     | NCC                           | -    |
| Hong Kong                                                           |                                                                                                     | OFCA                          | -    |
| Australia                                                           |                                                                                                     | RCM                           | -    |
| India                                                               |                                                                                                     | <b>International Services</b> | WPC  |
| Thailand                                                            | NTC                                                                                                 |                               | -    |
| Singapore                                                           | IDA                                                                                                 |                               | -    |
| Note:                                                               |                                                                                                     |                               |      |
| 1. FCC Designation No.: CN1201. Test Firm Registration No.: 523476. |                                                                                                     |                               |      |
| 2. IC Canada Registration No.: 7760A                                |                                                                                                     |                               |      |

#### B. TCBs and Notify Bodies Recognized Testing Laboratory.

| Recognized Testing Laboratory of ... | Notify body number |
|--------------------------------------|--------------------|
|--------------------------------------|--------------------|

|                                          |           |
|------------------------------------------|-----------|
| TUV Rheinland                            | Optional. |
| Intertek                                 |           |
| TUV SUD                                  |           |
| SGS                                      |           |
| Phoenix Testlab GmbH                     | 0700      |
| Element Materials Technology Warwick Ltd | 0891      |
| Timco Engineering, Inc.                  | 1177      |
| Eurofins Product Service GmbH            | 0681      |

### 3 Contents

|                                                         | <b>Page</b> |
|---------------------------------------------------------|-------------|
| <b>1 COVER PAGE.....</b>                                | <b>1</b>    |
| <b>2 LABORATORIES INTRODUCTION .....</b>                | <b>2</b>    |
| <b>3 CONTENTS .....</b>                                 | <b>4</b>    |
| <b>4 REVISION HISTORY .....</b>                         | <b>6</b>    |
| <b>5 GENERAL INFORMATION.....</b>                       | <b>7</b>    |
| 5.1 GENERAL DESCRIPTION OF E.U.T. ....                  | 7           |
| 5.2 DETAILS OF E.U.T. ....                              | 7           |
| 5.3 TEST MODE .....                                     | 10          |
| <b>6 TEST SUMMARY .....</b>                             | <b>12</b>   |
| <b>7 EQUIPMENT USED DURING TEST .....</b>               | <b>13</b>   |
| 7.1 EQUIPMENTS LIST .....                               | 13          |
| 7.2 MEASUREMENT UNCERTAINTY .....                       | 14          |
| 7.3 TEST EQUIPMENT CALIBRATION .....                    | 14          |
| <b>8 RF OUTPUT POWER .....</b>                          | <b>15</b>   |
| 8.1 EUT OPERATION.....                                  | 15          |
| 8.2 TEST PROCEDURE .....                                | 15          |
| 8.3 TEST RESULT .....                                   | 16          |
| <b>9 PEAK-TO-AVERAGE RATIO.....</b>                     | <b>39</b>   |
| 9.1 EUT OPERATION.....                                  | 39          |
| 9.2 TEST PROCEDURE .....                                | 39          |
| 9.3 TEST RESULT .....                                   | 39          |
| <b>10 BANDWIDTH.....</b>                                | <b>40</b>   |
| 10.1 EUT OPERATION.....                                 | 40          |
| 10.2 TEST PROCEDURE.....                                | 40          |
| 10.3 TEST RESULT .....                                  | 41          |
| <b>11 SPURIOUS EMISSIONS AT ANTENNA TERMINALS .....</b> | <b>61</b>   |
| 11.1 EUT OPERATION.....                                 | 61          |
| 11.2 TEST PROCEDURE.....                                | 61          |
| 11.3 TEST RESULT .....                                  | 61          |
| <b>12 SPURIOUS RADIATED EMISSIONS.....</b>              | <b>62</b>   |
| 12.1 EUT OPERATION.....                                 | 62          |
| 12.2 TEST SETUP .....                                   | 62          |
| 12.3 SPECTRUM ANALYZER SETUP .....                      | 63          |
| 12.4 TEST PROCEDURE.....                                | 64          |
| 12.5 SUMMARY OF TEST RESULTS .....                      | 65          |
| <b>13 BAND EDGE MEASUREMENT .....</b>                   | <b>68</b>   |
| 13.1 EUT OPERATION.....                                 | 68          |
| 13.2 TEST PROCEDURE.....                                | 68          |
| 13.3 TEST RESULT .....                                  | 69          |
| <b>14 FREQUENCY STABILITY.....</b>                      | <b>70</b>   |
| 14.1 EUT OPERATION.....                                 | 70          |
| 14.2 TEST PROCEDURE.....                                | 70          |
| 14.3 TEST RESULT .....                                  | 71          |

15 RF EXPOSURE.....87

16 PHOTOGRAPHS OF TEST SETUP AND EUT.....88

#### 4 Revision History

| Test report No.      | Date of Receipt sample | Date of Test                    | Date of Issue | Purpose  | Comment | Approved |
|----------------------|------------------------|---------------------------------|---------------|----------|---------|----------|
| WTS17S10934<br>93-4E | 2017-07-08             | 2017-07-09<br>to 2017-11-<br>24 | 2017-11-25    | original | -       | Valid    |
|                      |                        |                                 |               |          |         |          |

## 5 General Information

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

|                                       |                              |
|---------------------------------------|------------------------------|
| Product Name:                         | Smart Phone                  |
| Model No.:                            | R520                         |
| Model Description:                    | N/A                          |
| GSM Band(s):                          | GSM 850/900/1900MHz          |
| GPRS/EGPRS Class:                     | 12                           |
| WCDMA Band(s):                        | FDD Band II/IV/V/VIII        |
| LTE Band(s):                          | FDD Band 2/4/7               |
| Wi-Fi Specification:                  | 2.4G-802.11b/g/n HT20/n HT40 |
| Bluetooth Version:                    | Bluetooth v4.0 with BLE      |
| GPS:                                  | Support                      |
| NFC:                                  | N/A                          |
| Hardware Version:                     | V1.0                         |
| Software Version:                     | KAA_SMART8_CLA_EN_N_1.02.601 |
| Highest frequency<br>(Exclude Radio): | 1.25GHz                      |
| Storage Location:                     | Internal Storage             |

Note: This EUT has two SIM card slots, and use same one RF module. We found that RF parameters are the same, when we insert the card 1 and card 2. So we usually performed the test under main card slot 1.

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

|                      |                                  |
|----------------------|----------------------------------|
| Operation Frequency: | GSM/GPRS/EDGE 850: 824~849MHz    |
|                      | PCS/GPRS/EDGE 1900: 1850~1910MHz |
|                      | WCDMA Band II: 1850~1910MHz      |
|                      | WCDMA Band V: 824~849MHz         |
|                      | WCDMA Band IV: 1710~1755MHz      |
|                      | LTE Band 2: 1850~1910MHz         |
|                      | LTE Band 4: 1710~1755MHz         |
|                      | LTE Band 7: 2500-2570MHz         |
|                      | WiFi:                            |
|                      | 802.11b/g/n HT20: 2412~2462MHz   |
|                      | 802.11n HT40: 2422~2452MHz       |
|                      | Bluetooth: 2402~2480MHz          |
|                      | Max. RF output power:            |
|                      | GSM 850: 32.88dBm                |
|                      | PCS1900: 30.09dBm                |
|                      | WCDMA Band II: 22.42dBm          |
|                      | WCDMA Band V: 22.41dBm           |

|                       |                                                  |
|-----------------------|--------------------------------------------------|
|                       | WCDMA Band IV: 22.54dBm                          |
|                       | LTE Band 2: 22.98dBm                             |
|                       | LTE Band 4: 22.88dBm                             |
|                       | LTE Band 7: 22.90dBm                             |
|                       | WiFi(2.4G): 9.50dBm                              |
|                       | Bluetooth: -1.39dBm                              |
| Type of Modulation:   | GSM,GPRS: GMSK                                   |
|                       | EDGE: GMSK, 8PSK                                 |
|                       | WCDMA: BPSK, 16QAM                               |
|                       | LTE: QPSK, 16QAM                                 |
|                       | WiFi: CCK, OFDM                                  |
|                       | Bluetooth: GFSK, Pi/4 DQPSK, 8DPSK               |
| Antenna installation: | GSM/WCDMA/LTE: internal permanent antenna        |
|                       | WiFi/Bluetooth: internal permanent antenna       |
| Antenna Gain:         | GSM 850: -0.65dBi                                |
|                       | PCS1900: 0.75dBi                                 |
|                       | WCDMA Band II: 0.75dBi                           |
|                       | WCDMA Band V: -0.65dBi                           |
|                       | WCDMA Band IV: 0.87dBi                           |
|                       | LTE Band 2: 0.75dBi                              |
|                       | LTE Band 4: 0.87dBi                              |
|                       | LTE Band 7: 0.79dBi                              |
|                       | WiFi(2.4G): -0.15dBi                             |
|                       | Bluetooth: -0.15dBi                              |
| Technical Data:       | Battery DC 3.85V, 4000mAh                        |
|                       | DC 5V, 2.0A, charging from adapter               |
|                       | (Adapter Input: 100-240V~50/60Hz 0.35A)          |
| Adapter:              | Manufacture: Shenzhen Kosun Industrial Co.,Ltd.  |
|                       | Model No.: A8A-050200U-US1                       |
| Type of Emission:     | LTE Band 2 1.4MHz: 1M09G7D(QPSK), 1M09W7D(16QAM) |
|                       | LTE Band 2 3MHz: 2M73G7D(QPSK), 2M72W7D(16QAM)   |
|                       | LTE Band 2 5MHz: 4M50G7D(QPSK), 4M49W7D(16QAM)   |
|                       | LTE Band 2 10 MHz: 8M93G7D(QPSK), 8M92W7D(16QAM) |
|                       | LTE Band 2 15MHz: 13M5G7D(QPSK), 13M5W7D(16QAM)  |
|                       | LTE Band 2 20MHz: 17M9G7D(QPSK), 17M9W7D(16QAM)  |
|                       | LTE Band 4 1.4MHz: 1M09G7D(QPSK), 1M09W7D(16QAM) |
|                       | LTE Band 4 3MHz: 2M73G7D(QPSK), 2M72W7D(16QAM)   |
|                       | LTE Band 4 5MHz: 4M50G7D(QPSK), 4M50W7D(16QAM)   |
|                       | LTE Band 4 10 MHz: 8M92G7D(QPSK), 8M92W7D(16QAM) |
|                       | LTE Band 4 15MHz: 13M5G7D(QPSK), 13M5W7D(16QAM)  |

LTE Band 4 20MHz: 17M9G7D(QPSK), 17M9W7D(16QAM)

LTE Band 5 1.4MHz: 1M16G7D(QPSK), 1M16W7D(16QAM)

LTE Band 7 5MHz: 4M50G7D(QPSK), 4M50W7D(16QAM)

LTE Band 7 10 MHz: 8M93G7D(QPSK), 8M92W7D(16QAM)

LTE Band 7 15MHz: 13M5G7D(QPSK), 13M5W7D(16QAM)

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

### 5.3 Test Mode

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

| Support Band | Test Mode BW(MHz) | Channel Frequency | Channel Number |
|--------------|-------------------|-------------------|----------------|
| LTE Band 2   | 1.4               | 1850.7 MHz        | 18607          |
|              |                   | 1880.0 MHz        | 18900          |
|              |                   | 1909.3 MHz        | 19193          |
|              | 3                 | 1851.5 MHz        | 18615          |
|              |                   | 1880.0 MHz        | 18900          |
|              |                   | 1908.5 MHz        | 19185          |
|              | 5                 | 1852.5 MHz        | 18625          |
|              |                   | 1880.0 MHz        | 18900          |
|              |                   | 1907.5 MHz        | 19175          |
|              | 10                | 1855.0 MHz        | 18650          |
|              |                   | 1880.0 MHz        | 18900          |
|              |                   | 1905.0 MHz        | 19150          |
|              | 15                | 1857.5 MHz        | 18675          |
|              |                   | 1880.0 MHz        | 18900          |
|              |                   | 1902.5 MHz        | 19125          |
|              | 20                | 1860.0 MHz        | 18700          |
|              |                   | 1880.0 MHz        | 18900          |
|              |                   | 1900.0 MHz        | 19100          |
| LTE Band 4   | 1.4               | 1710.7 MHz        | 19957          |
|              |                   | 1732.5 MHz        | 20175          |
|              |                   | 1754.3 MHz        | 20393          |
|              | 3                 | 1711.5 MHz        | 19965          |
|              |                   | 1732.5 MHz        | 20175          |
|              |                   | 1753.5 MHz        | 20385          |
|              | 5                 | 1712.5 MHz        | 19975          |
|              |                   | 1732.5 MHz        | 20175          |
|              |                   | 1752.5 MHz        | 20375          |
|              | 10                | 1715.0 MHz        | 20000          |
|              |                   | 1732.5 MHz        | 20175          |
|              |                   | 1750.0 MHz        | 20350          |
|              | 15                | 1717.5 MHz        | 20025          |
|              |                   | 1732.5 MHz        | 20175          |
|              |                   | 1747.5 MHz        | 20325          |
|              | 20                | 1720.0 MHz        | 20050          |
|              |                   | 1732.5 MHz        | 20175          |
|              |                   | 1745.0 MHz        | 20300          |
| LTE Band 7   | 5                 | 2502.5 MHz        | 20775          |
|              |                   | 2535 MHz          | 21100          |
|              |                   | 2567.5 MHz        | 21425          |
|              | 10                | 2505.0 MHz        | 20800          |

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

## 6 Test Summary

| Test Items                             | Test Requirement                                 | Result |
|----------------------------------------|--------------------------------------------------|--------|
| RF Output Power                        | 2.1046<br>24.232 (c)<br>27.50(h.2)<br>27.50(d.4) | 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)<br>27.53(m)(4)  | PASS   |
| Field Strength of Spurious Radiation   | 2.1053<br>24.238 (a)<br>27.53(h)<br>27.53(m)(4)  | PASS   |
| Out of band emission                   | 24.238 (a)<br>27.53(h)<br>27.53(m)(4)            | 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   |

Note 1: This smart phone R520 is exactly the same as original one SMART 8, the original FCC ID is UT3SMART8 and the original report is WTS17S0681404-4E. For market purpose, this only changed the adapter, so all the test data is based on original report WTS17S0681404-4E except for the adapter related test items.

Note 2: Retest the test data for 18-40GHz of spurious emissions.

## 7 Equipment Used during Test

### 7.1 Equipments List

| Conducted Emissions Test Site 1#                              |                            |                      |              |                 |                       |                      |
|---------------------------------------------------------------|----------------------------|----------------------|--------------|-----------------|-----------------------|----------------------|
| Item                                                          | Equipment                  | Manufacturer         | Model No.    | Serial No.      | Last Calibration Date | Calibration Due Date |
| 1.                                                            | EMI Test Receiver          | R&S                  | ESCI         | 100947          | 2017-09-12            | 2018-09-11           |
| 2.                                                            | LISN                       | R&S                  | ENV216       | 101215          | 2017-09-12            | 2018-09-11           |
| 3.                                                            | Cable                      | Top                  | TYPE16(3.5M) | -               | 2017-09-12            | 2018-09-11           |
| Conducted Emissions Test Site 2#                              |                            |                      |              |                 |                       |                      |
| Item                                                          | Equipment                  | Manufacturer         | Model No.    | Serial No.      | Last Calibration Date | Calibration Due Date |
| 1.                                                            | EMI Test Receiver          | R&S                  | ESCI         | 101155          | 2017-09-12            | 2018-09-11           |
| 2.                                                            | LISN                       | SCHWARZBECK          | NSLK 8128    | 8128-289        | 2017-09-12            | 2018-09-11           |
| 3.                                                            | Limiter                    | York                 | MTS-IMP-136  | 261115-001-0024 | 2017-09-12            | 2018-09-11           |
| 4.                                                            | Cable                      | LARGE                | RF300        | -               | 2017-09-12            | 2018-09-11           |
| 3m Semi-anechoic Chamber for Radiation Emissions Test site 1# |                            |                      |              |                 |                       |                      |
| Item                                                          | Equipment                  | Manufacturer         | Model No.    | Serial No.      | Last Calibration Date | Calibration Due Date |
| 1                                                             | Spectrum Analyzer          | R&S                  | FSP          | 100091          | 2017-04-29            | 2018-04-28           |
| 2                                                             | Active Loop Antenna        | Beijing Dazhi        | ZN30900A     | -               | 2017-04-09            | 2018-04-08           |
| 3                                                             | Trilog Broadband Antenna   | SCHWARZBECK          | VULB9163     | 336             | 2017-04-09            | 2018-04-08           |
| 4                                                             | Coaxial Cable (below 1GHz) | Top                  | TYPE16(13M)  | -               | 2017-09-12            | 2018-09-11           |
| 5                                                             | Broad-band Horn Antenna    | SCHWARZBECK          | BBHA 9120 D  | 667             | 2017-04-09            | 2018-04-08           |
| 6                                                             | Broad-band Horn Antenna    | SCHWARZBECK          | BBHA 9170    | 335             | 2017-04-09            | 2018-04-08           |
| 7                                                             | Broadband Preamplifier     | COMPLIANCE DIRECTION | PAP-1G18     | 2004            | 2017-04-13            | 2018-04-12           |
| 8                                                             | Coaxial Cable (above 1GHz) | Top                  | 1GHz-25GHz   | EW02014-7       | 2017-04-13            | 2018-04-12           |
| 9                                                             | Signal Generator           | R&S                  | SMR20        | 100046          | 2017-09-12            | 2018-09-11           |
| 10                                                            | Smart Antenna              | SCHWARZBECK          | HA08         | -               | 2017-04-09            | 2018-04-08           |
| 3m Semi-anechoic Chamber for Radiation Emissions Test site 2# |                            |                      |              |                 |                       |                      |
| Item                                                          | Equipment                  | Manufacturer         | Model No.    | Serial No       | Last Calibration Date | Calibration Due Date |
| 1                                                             | Test Receiver              | R&S                  | ESCI         | 101296          | 2017-04-13            | 2018-04-12           |
| 2                                                             | Trilog Broadband Antenna   | SCHWARZBECK          | VULB9160     | 9160-3325       | 2017-04-09            | 2018-04-08           |

| 3                           | Amplifier                                  | Compliance<br>pirection<br>systems inc | PAP-0203  | 22024      | 2017-04-13                  | 2018-04-12              |
|-----------------------------|--------------------------------------------|----------------------------------------|-----------|------------|-----------------------------|-------------------------|
| 4                           | Cable                                      | HUBER+SUHNER                           | CBL2      | 525178     | 2017-04-13                  | 2018-04-12              |
| <b>RF Conducted Testing</b> |                                            |                                        |           |            |                             |                         |
| Item                        | Equipment                                  | Manufacturer                           | Model No. | Serial No. | Last<br>Calibration<br>Date | Calibration<br>Due Date |
| 1.                          | EMC Analyzer<br>(9k~26.5GHz)               | Agilent                                | E7405A    | MY45114943 | 2017-09-12                  | 2018-09-11              |
| 2.                          | Spectrum Analyzer                          | Agilent                                | N9020A    | MY49100060 | 2017-09-12                  | 2018-09-11              |
| 3.                          | Universal Radio<br>Communication<br>Tester | R&S                                    | CMW 500   | 127818     | 2017-09-12                  | 2018-09-11              |
| 4                           | Signal Analyzer<br>(9k~26.5GHz)            | Agilent                                | N9010A    | MY50520207 | 2017-09-12                  | 2018-09-11              |

## 7.2 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 (Active Loop antenna 9kHz~30MHz) |
| Confidence interval: 95%. Confidence factor:k=2 |                                                |

## 7.3 Test Equipment Calibration

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

## 8 RF OUTPUT POWER

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

### 8.1 EUT Operation

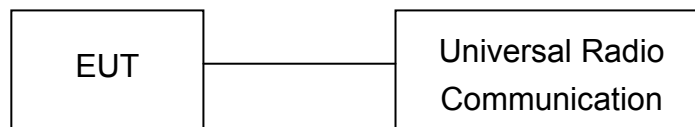
Operating Environment :

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

### 8.2 Test Procedure

Conducted method:

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



Radiated method:

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

### 8.3 Test Result

#### Conducted Power

##### LTE Band 2:

| BW(MHz) | Ch    | Freq(MHz) | Mode  | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---------|-------|-----------|-------|------------------|--------------|---------------------|----------------------|----------|
| 1.4MHz  | 18607 | 1850.7    | QPSK  | 1                | 0            | 22.7                | 22.0±1               | /        |
|         |       |           |       | 1                | 2            | 22.76               | 22.0±1               | /        |
|         |       |           |       | 1                | 5            | 22.69               | 22.0±1               | /        |
|         |       |           |       | 3                | 0            | 22.74               | 22.0±1               | /        |
|         |       |           |       | 3                | 1            | 22.75               | 22.0±1               | /        |
|         |       |           |       | 3                | 2            | 22.76               | 22.0±1               | /        |
|         |       |           | 16QAM | 6                | 0            | 21.75               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 0            | 21.88               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 2            | 21.87               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 5            | 21.87               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 0            | 21.87               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 1            | 21.86               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 2            | 21.88               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 0            | 20.88               | 21.0±1               | 1.0      |
|         | 18900 | 1880      | QPSK  | 1                | 0            | 22.84               | 22.0±1               | /        |
|         |       |           |       | 1                | 2            | 22.92               | 22.0±1               | /        |
|         |       |           |       | 1                | 5            | 22.83               | 22.0±1               | /        |
|         |       |           |       | 3                | 0            | 22.08               | 22.0±1               | /        |
|         |       |           |       | 3                | 1            | 22.85               | 22.0±1               | /        |
|         |       |           |       | 3                | 2            | 22.89               | 22.0±1               | /        |
|         |       |           | 16QAM | 6                | 0            | 21.78               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 0            | 21.22               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 2            | 21.27               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 5            | 21.33               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 0            | 21.25               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 1            | 21.22               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 2            | 21.22               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 0            | 20.81               | 21.0±1               | 1.0      |
|         | 19193 | 1909.3    | QPSK  | 1                | 0            | 22.7                | 22.0±1               | /        |
|         |       |           |       | 1                | 2            | 22.8                | 22.0±1               | /        |
|         |       |           |       | 1                | 5            | 22.7                | 22.0±1               | /        |
|         |       |           |       | 3                | 0            | 22.87               | 22.0±1               | /        |
|         |       |           |       | 3                | 1            | 22.87               | 22.0±1               | /        |
|         |       |           |       | 3                | 2            | 22.88               | 22.0±1               | /        |
|         |       |           | 16QAM | 6                | 0            | 21.75               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 0            | 21.77               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 2            | 21.83               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 5            | 21.76               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 0            | 21.04               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 1            | 21.01               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 2            | 21.02               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 0            | 20.96               | 21.0±1               | 1.0      |

| BW(MHz) | Ch    | Freq(MHz) | Mode  | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---------|-------|-----------|-------|------------------|--------------|---------------------|----------------------|----------|
| 3MHz    | 18615 | 1851.5    | QPSK  | 1                | 0            | 22.7                | 22.0±1               | /        |
|         |       |           |       | 1                | 8            | 22.72               | 22.0±1               | /        |
|         |       |           |       | 1                | 14           | 22.66               | 22.0±1               | /        |
|         |       |           |       | 6                | 0            | 21.75               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 4            | 21.76               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 9            | 21.72               | 21.0±1               | 1.0      |
|         |       |           |       | 15               | 0            | 21.72               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.6                | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 8            | 21.62               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 14           | 21.57               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 0            | 20.86               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 4            | 20.87               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 9            | 20.84               | 21.0±1               | 1.0      |
|         |       |           |       | 15               | 0            | 20.77               | 21.0±1               | 1.0      |
|         | 18900 | 1880      | QPSK  | 1                | 0            | 22.83               | 22.0±1               | /        |
|         |       |           |       | 1                | 8            | 22.88               | 22.0±1               | /        |
|         |       |           |       | 1                | 14           | 22.84               | 22.0±1               | /        |
|         |       |           |       | 6                | 0            | 21.92               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 4            | 21.92               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 9            | 21.93               | 21.0±1               | 1.0      |
|         |       |           |       | 15               | 0            | 21.89               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.25               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 8            | 21.29               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 14           | 21.27               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 0            | 21.05               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 4            | 21.06               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 9            | 21.07               | 21.0±1               | 1.0      |
|         |       |           |       | 15               | 0            | 20.99               | 21.0±1               | 1.0      |
|         | 19185 | 1908.5    | QPSK  | 1                | 0            | 22.68               | 22.0±1               | /        |
|         |       |           |       | 1                | 8            | 22.69               | 22.0±1               | /        |
|         |       |           |       | 1                | 14           | 22.62               | 22.0±1               | /        |
|         |       |           |       | 6                | 0            | 21.79               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 4            | 21.77               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 9            | 21.75               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 15               | 0            | 21.77               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 0            | 21.79               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 8            | 21.75               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 14           | 21.65               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 0            | 20.88               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 4            | 20.88               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 9            | 20.84               | 21.0±1               | 1.0      |
|         |       |           |       | 15               | 0            | 20.78               | 21.0±1               | 1.0      |

| BW(MHz) | Ch    | Freq(MHz) | Mode  | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---------|-------|-----------|-------|------------------|--------------|---------------------|----------------------|----------|
| 5MHz    | 18625 | 1852.5    | QPSK  | 1                | 0            | 22.76               | 22.0±1               | /        |
|         |       |           |       | 1                | 12           | 22.76               | 22.0±1               | /        |
|         |       |           |       | 1                | 24           | 22.72               | 22.0±1               | /        |
|         |       |           |       | 12               | 0            | 21.79               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 6            | 21.79               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 11           | 21.78               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 21.75               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.81               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 12           | 21.8                | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 24           | 21.79               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 0            | 20.85               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 6            | 20.83               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 11           | 20.82               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 20.88               | 21.0±1               | 1.0      |
|         | 18900 | 1880      | QPSK  | 1                | 0            | 22.95               | 22.0±1               | /        |
|         |       |           |       | 1                | 12           | 22.92               | 22.0±1               | /        |
|         |       |           |       | 1                | 24           | 22.93               | 22.0±1               | /        |
|         |       |           |       | 12               | 0            | 21.89               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 6            | 21.86               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 11           | 21.86               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 21.94               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.3                | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 12           | 21.31               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 24           | 21.27               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 0            | 21.13               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 6            | 21.1                | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 11           | 21.08               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 20.97               | 21.0±1               | 1.0      |
|         | 19175 | 1907.5    | QPSK  | 1                | 0            | 22.77               | 22.0±1               | /        |
|         |       |           |       | 1                | 12           | 22.74               | 22.0±1               | /        |
|         |       |           |       | 1                | 24           | 22.7                | 22.0±1               | /        |
|         |       |           |       | 12               | 0            | 21.86               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 6            | 21.83               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 11           | 21.81               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 21.8                | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.6                | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 12           | 21.55               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 24           | 21.43               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 0            | 20.96               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 6            | 20.93               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 11           | 20.91               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 20.8                | 21.0±1               | 1.0      |

| BW(MHz) | Ch    | Freq(MHz) | Mode  | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---------|-------|-----------|-------|------------------|--------------|---------------------|----------------------|----------|
| 10MHz   | 18650 | 1855      | QPSK  | 1                | 0            | 22.82               | 22.0±1               | /        |
|         |       |           |       | 1                | 24           | 22.72               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.68               | 22.0±1               | /        |
|         |       |           |       | 25               | 0            | 21.74               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 12           | 21.69               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 21.67               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 21.71               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.72               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 24           | 21.65               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.63               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 20.78               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 12           | 20.73               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 20.72               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.72               | 21.0±1               | 1.0      |
|         | 18900 | 1880      | QPSK  | 1                | 0            | 22.9                | 22.0±1               | /        |
|         |       |           |       | 1                | 24           | 22.87               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.9                | 22.0±1               | /        |
|         |       |           |       | 25               | 0            | 21.91               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 12           | 21.89               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 21.9                | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 21.93               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.3                | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 24           | 21.29               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.31               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 21                  | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 12           | 20.96               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 20.97               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.97               | 21.0±1               | 1.0      |
|         | 19150 | 1905      | QPSK  | 1                | 0            | 22.78               | 22.0±1               | /        |
|         |       |           |       | 1                | 24           | 22.72               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.67               | 22.0±1               | /        |
|         |       |           |       | 25               | 0            | 21.81               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 12           | 21.77               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 21.77               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 21.81               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.87               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 24           | 21.81               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.68               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 20.93               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 12           | 20.93               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 20.91               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.91               | 21.0±1               | 1.0      |

| BW(MHz) | Ch    | Freq(MHz) | Mode  | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---------|-------|-----------|-------|------------------|--------------|---------------------|----------------------|----------|
| 15MHz   | 18675 | 1857.5    | QPSK  | 1                | 0            | 22.82               | 22.0±1               | /        |
|         |       |           |       | 1                | 37           | 22.7                | 22.0±1               | /        |
|         |       |           |       | 1                | 74           | 22.7                | 22.0±1               | /        |
|         |       |           |       | 36               | 0            | 21.76               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 16           | 21.72               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 35           | 21.72               | 21.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 21.77               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.78               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 37           | 21.68               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 74           | 21.71               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 0            | 20.78               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 16           | 20.75               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 35           | 20.74               | 21.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 20.78               | 21.0±1               | 1.0      |
|         | 18900 | 1880      | QPSK  | 1                | 0            | 22.9                | 22.0±1               | /        |
|         |       |           |       | 1                | 37           | 22.87               | 22.0±1               | /        |
|         |       |           |       | 1                | 74           | 22.88               | 22.0±1               | /        |
|         |       |           |       | 36               | 0            | 21.88               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 16           | 21.87               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 35           | 21.84               | 21.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 21.88               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.3                | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 37           | 21.27               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 74           | 21.23               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 0            | 20.95               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 16           | 20.95               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 35           | 20.95               | 21.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 20.93               | 21.0±1               | 1.0      |
|         | 19125 | 1902.5    | QPSK  | 1                | 0            | 22.87               | 22.0±1               | /        |
|         |       |           |       | 1                | 37           | 22.76               | 22.0±1               | /        |
|         |       |           |       | 1                | 74           | 22.71               | 22.0±1               | /        |
|         |       |           |       | 36               | 0            | 21.83               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 16           | 21.76               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 35           | 21.72               | 21.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 21.8                | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.21               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 37           | 21.13               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 74           | 21.96               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 0            | 20.85               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 16           | 20.81               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 35           | 20.8                | 21.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 20.88               | 21.0±1               | 1.0      |

| BW(MHz) | Ch    | Freq(MHz) | Mode  | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---------|-------|-----------|-------|------------------|--------------|---------------------|----------------------|----------|
| 20MHz   | 18700 | 1860      | QPSK  | 1                | 0            | 22.83               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.7                | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.8                | 22.0±1               | /        |
|         |       |           |       | 50               | 0            | 21.81               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 21.8                | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 21.8                | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 21.78               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.44               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.33               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.43               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.87               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 20.83               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 20.86               | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 20.85               | 21.0±1               | 1.0      |
|         | 18900 | 1880      | QPSK  | 1                | 0            | 22.92               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.98               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.88               | 22.0±1               | /        |
|         |       |           |       | 50               | 0            | 21.91               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 21.97               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 21.91               | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 21.92               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.4                | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.36               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.33               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.98               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 20.95               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 20.97               | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 20.93               | 21.0±1               | 1.0      |
|         | 19100 | 1900      | QPSK  | 1                | 0            | 22.86               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.68               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.67               | 22.0±1               | /        |
|         |       |           |       | 50               | 0            | 21.81               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 21.75               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 21.73               | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 21.74               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.26               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.11               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21                  | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.88               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 20.84               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 20.8                | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 20.83               | 21.0±1               | 1.0      |

**LTE Band 4:**

| BW(MHz) | Ch    | Freq(MHz) | Mode  | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---------|-------|-----------|-------|------------------|--------------|---------------------|----------------------|----------|
| 1.4MHz  | 19957 | 1710.7    | QPSK  | 1                | 0            | 22.42               | 22.0±1               | /        |
|         |       |           |       | 1                | 2            | 22.47               | 22.0±1               | /        |
|         |       |           |       | 1                | 5            | 22.42               | 22.0±1               | /        |
|         |       |           |       | 3                | 0            | 22.46               | 22.0±1               | /        |
|         |       |           |       | 3                | 1            | 22.44               | 22.0±1               | /        |
|         |       |           |       | 3                | 2            | 22.45               | 22.0±1               | /        |
|         |       |           |       | 6                | 0            | 21.36               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.45               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 2            | 21.54               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 5            | 21.47               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 0            | 21.47               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 1            | 21.45               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 2            | 21.48               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 0            | 20.51               | 21.0±1               | 1.0      |
|         | 20175 | 1732.5    | QPSK  | 1                | 0            | 22.53               | 22.0±1               | /        |
|         |       |           |       | 1                | 2            | 22.6                | 22.0±1               | /        |
|         |       |           |       | 1                | 5            | 22.77               | 22.0±1               | /        |
|         |       |           |       | 3                | 0            | 22.61               | 22.0±1               | /        |
|         |       |           |       | 3                | 1            | 22.6                | 22.0±1               | /        |
|         |       |           |       | 3                | 2            | 22.59               | 22.0±1               | /        |
|         |       |           |       | 6                | 0            | 21.51               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.87               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 2            | 21.94               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 5            | 21.86               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 0            | 21.78               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 1            | 21.76               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 2            | 21.78               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 0            | 20.43               | 21.0±1               | 1.0      |
|         | 20393 | 1754.3    | QPSK  | 1                | 0            | 22.46               | 22.0±1               | /        |
|         |       |           |       | 1                | 2            | 22.57               | 22.0±1               | /        |
|         |       |           |       | 1                | 5            | 22.47               | 22.0±1               | /        |
|         |       |           |       | 3                | 0            | 22.57               | 22.0±1               | /        |
|         |       |           |       | 3                | 1            | 22.59               | 22.0±1               | /        |
|         |       |           |       | 3                | 2            | 22.58               | 22.0±1               | /        |
|         |       |           | 16QAM | 6                | 0            | 21.52               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 0            | 21.44               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 2            | 21.52               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 5            | 21.46               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 0            | 21.66               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 1            | 21.65               | 21.0±1               | 1.0      |
|         |       |           |       | 3                | 2            | 21.62               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 0            | 20.59               | 21.0±1               | 1.0      |

| BW(MHz) | Ch    | Freq(MHz) | Mode  | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---------|-------|-----------|-------|------------------|--------------|---------------------|----------------------|----------|
| 3MHz    | 19965 | 1711.5    | QPSK  | 1                | 0            | 22.29               | 22.0±1               | /        |
|         |       |           |       | 1                | 8            | 22.37               | 22.0±1               | /        |
|         |       |           |       | 1                | 14           | 22.32               | 22.0±1               | /        |
|         |       |           |       | 6                | 0            | 21.36               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 4            | 21.39               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 9            | 21.36               | 21.0±1               | 1.0      |
|         |       |           |       | 15               | 0            | 21.36               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.14               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 8            | 21.21               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 14           | 21.15               | 21.0±1               | 1.0      |
|         |       |           |       | 8                | 0            | 20.45               | 21.0±1               | 1.0      |
|         |       |           |       | 8                | 4            | 20.47               | 21.0±1               | 1.0      |
|         |       |           |       | 8                | 9            | 20.46               | 21.0±1               | 1.0      |
|         |       |           |       | 15               | 0            | 20.36               | 21.0±1               | 1.0      |
|         | 20175 | 1732.5    | QPSK  | 1                | 0            | 22.47               | 22.0±1               | /        |
|         |       |           |       | 1                | 8            | 22.53               | 22.0±1               | /        |
|         |       |           |       | 1                | 14           | 22.47               | 22.0±1               | /        |
|         |       |           |       | 6                | 0            | 21.53               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 4            | 21.51               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 9            | 21.54               | 21.0±1               | 1.0      |
|         |       |           |       | 15               | 0            | 21.5                | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.77               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 8            | 21.84               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 14           | 21.78               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 0            | 20.61               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 4            | 20.62               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 9            | 20.61               | 21.0±1               | 1.0      |
|         |       |           |       | 15               | 0            | 20.54               | 21.0±1               | 1.0      |
|         | 20385 | 1753.5    | QPSK  | 1                | 0            | 22.43               | 22.0±1               | /        |
|         |       |           |       | 1                | 8            | 22.47               | 22.0±1               | /        |
|         |       |           |       | 1                | 14           | 22.39               | 22.0±1               | /        |
|         |       |           |       | 6                | 0            | 21.54               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 4            | 21.52               | 21.0±1               | 1.0      |
|         |       |           |       | 6                | 9            | 21.53               | 21.0±1               | 1.0      |
|         |       |           |       | 15               | 0            | 21.51               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.46               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 8            | 21.48               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 14           | 21.42               | 21.0±1               | 1.0      |
|         |       |           |       | 8                | 0            | 20.58               | 21.0±1               | 1.0      |
|         |       |           |       | 8                | 4            | 20.58               | 21.0±1               | 1.0      |
|         |       |           |       | 8                | 9            | 20.58               | 21.0±1               | 1.0      |
|         |       |           |       | 15               | 0            | 20.48               | 21.0±1               | 1.0      |

| BW(MHz) | Ch    | Freq(MHz) | Mode  | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---------|-------|-----------|-------|------------------|--------------|---------------------|----------------------|----------|
| 5MHz    | 19975 | 1712.5    | QPSK  | 1                | 0            | 22.41               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.44               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.48               | 22.0±1               | /        |
|         |       |           |       | 12               | 0            | 21.45               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 24           | 21.44               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 49           | 21.47               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 21.4                | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.39               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.42               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.49               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 0            | 20.5                | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 24           | 20.49               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 49           | 20.5                | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 20.54               | 21.0±1               | 1.0      |
|         | 20175 | 1732.5    | QPSK  | 1                | 0            | 22.6                | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.57               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.61               | 22.0±1               | /        |
|         |       |           |       | 12               | 0            | 21.56               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 24           | 21.55               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 49           | 21.59               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 21.52               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.79               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.79               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.83               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 0            | 20.68               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 24           | 20.65               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 49           | 20.69               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 20.54               | 21.0±1               | 1.0      |
|         | 20375 | 1752.5    | QPSK  | 1                | 0            | 22.56               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.55               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.54               | 22.0±1               | /        |
|         |       |           |       | 12               | 0            | 21.6                | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 24           | 21.56               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 49           | 21.58               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 21.53               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.3                | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.3                | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.29               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 0            | 20.64               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 24           | 20.61               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 49           | 20.63               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 20.49               | 21.0±1               | 1.0      |

| BW(MHz) | Ch    | Freq(MHz) | Mode  | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---------|-------|-----------|-------|------------------|--------------|---------------------|----------------------|----------|
| 10MHz   | 20000 | 1715      | QPSK  | 1                | 0            | 22.5                | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.52               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.52               | 22.0±1               | /        |
|         |       |           |       | 25               | 0            | 21.47               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 21.45               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 49           | 21.45               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 21.48               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.37               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.42               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.37               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 20.55               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 20.51               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 49           | 20.52               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.5                | 21.0±1               | 1.0      |
|         | 20175 | 1732.5    | QPSK  | 1                | 0            | 22.59               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.6                | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.61               | 22.0±1               | /        |
|         |       |           |       | 25               | 0            | 21.54               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 21.51               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 49           | 21.57               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 21.57               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.81               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.8                | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.8                | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 20.62               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 20.6                | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 49           | 20.62               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.61               | 21.0±1               | 1.0      |
|         | 20350 | 1750      | QPSK  | 1                | 0            | 22.58               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.52               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.46               | 22.0±1               | /        |
|         |       |           |       | 25               | 0            | 21.55               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 21.51               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 49           | 21.5                | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 50               | 0            | 21.53               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 0            | 21.6                | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.55               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.47               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 20.66               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 20.61               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 49           | 20.6                | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.58               | 21.0±1               | 1.0      |

| BW(MHz) | Ch    | Freq(MHz) | Mode  | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---------|-------|-----------|-------|------------------|--------------|---------------------|----------------------|----------|
| 15MHz   | 20025 | 1717.5    | QPSK  | 1                | 0            | 22.5                | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.49               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.52               | 22.0±1               | /        |
|         |       |           |       | 36               | 0            | 21.54               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 24           | 21.52               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 49           | 21.52               | 21.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 21.53               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.37               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.4                | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.4                | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 0            | 20.54               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 24           | 20.52               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 49           | 20.52               | 21.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 20.52               | 21.0±1               | 1.0      |
|         | 20175 | 1732.5    | QPSK  | 1                | 0            | 22.61               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.62               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.61               | 22.0±1               | /        |
|         |       |           |       | 36               | 0            | 21.62               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 24           | 21.61               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 49           | 21.61               | 21.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 21.62               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.89               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.81               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.80               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 0            | 20.65               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 24           | 20.66               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 49           | 20.68               | 21.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 20.64               | 21.0±1               | 1.0      |
|         | 20325 | 1747.5    | QPSK  | 1                | 0            | 22.7                | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.6                | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.57               | 22.0±1               | /        |
|         |       |           |       | 36               | 0            | 21.66               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 24           | 21.62               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 49           | 21.57               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 75               | 0            | 21.63               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 0            | 21.49               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.45               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.86               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 0            | 20.63               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 24           | 20.59               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 49           | 20.54               | 21.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 20.6                | 21.0±1               | 1.0      |

| BW(MHz) | Ch    | Freq(MHz) | Mode  | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---------|-------|-----------|-------|------------------|--------------|---------------------|----------------------|----------|
| 20MHz   | 20050 | 1720      | QPSK  | 1                | 0            | 22.55               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.45               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.62               | 22.0±1               | /        |
|         |       |           |       | 50               | 0            | 21.53               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 21.52               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 21.54               | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 21.52               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.04               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.02               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.1                | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 21.58               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 21.56               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 21.6                | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 21.58               | 21.0±1               | 1.0      |
|         | 20175 | 1732.5    | QPSK  | 1                | 0            | 22.86               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.88               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.63               | 22.0±1               | /        |
|         |       |           |       | 50               | 0            | 21.59               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 21.86               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 21.59               | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 21.58               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21                  | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.69               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21                  | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.63               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 20.66               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 20.64               | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 20.6                | 21.0±1               | 1.0      |
|         | 20300 | 1745      | QPSK  | 1                | 0            | 22.72               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.58               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.57               | 22.0±1               | /        |
|         |       |           |       | 50               | 0            | 21.62               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 21.57               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 21.56               | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 21.59               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.03               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.64               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.81               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.61               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 20.57               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 20.54               | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 20.6                | 21.0±1               | 1.0      |

**LTE Band 7:**

| BW(MHz) | Ch    | Freq(MHz) | Mode  | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---------|-------|-----------|-------|------------------|--------------|---------------------|----------------------|----------|
| 5MHz    | 20775 | 2502.5    | QPSK  | 1                | 0            | 22.69               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.56               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.42               | 22.0±1               | /        |
|         |       |           |       | 12               | 0            | 21.56               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 24           | 21.5                | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 49           | 21.45               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 21.48               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.79               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.66               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.58               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 0            | 20.65               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 24           | 20.59               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 49           | 20.56               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 20.45               | 21.0±1               | 1.0      |
|         | 21100 | 2535      | QPSK  | 1                | 0            | 22.05               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.32               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.32               | 22.0±1               | /        |
|         |       |           |       | 12               | 0            | 21.04               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 24           | 21.15               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 49           | 21.1                | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 21.17               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.69               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.85               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.98               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 0            | 20.13               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 24           | 20.23               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 49           | 20.31               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 20.11               | 21.0±1               | 1.0      |
|         | 21425 | 2567.5    | QPSK  | 1                | 0            | 22.5                | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.49               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.35               | 22.0±1               | /        |
|         |       |           |       | 12               | 0            | 21.58               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 24           | 21.53               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 49           | 21.49               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 21.48               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.49               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.42               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.31               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 0            | 21.57               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 24           | 21.52               | 21.0±1               | 1.0      |
|         |       |           |       | 12               | 49           | 21.47               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 21.55               | 21.0±1               | 1.0      |

| BW(MHz) | Ch    | Freq(MHz) | Mode  | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---------|-------|-----------|-------|------------------|--------------|---------------------|----------------------|----------|
| 10MHz   | 20800 | 2505      | QPSK  | 1                | 0            | 21.75               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 21.95               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 21.63               | 22.0±1               | /        |
|         |       |           |       | 25               | 0            | 20.93               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 20.72               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 49           | 20.62               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.79               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 20.96               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 20.78               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 20.64               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 20.15               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 20.85               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 49           | 20.78               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.85               | 21.0±1               | 1.0      |
|         | 21100 | 2535      | QPSK  | 1                | 0            | 22.58               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 21.92               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.19               | 22.0±1               | /        |
|         |       |           |       | 25               | 0            | 20.62               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 20.75               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 49           | 20.87               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.75               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 20.73               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 20.98               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.26               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 20.57               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 20.8                | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 49           | 20.95               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.81               | 21.0±1               | 1.0      |
|         | 21400 | 2565      | QPSK  | 1                | 0            | 22.46               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.51               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.32               | 22.0±1               | /        |
|         |       |           |       | 25               | 0            | 21.49               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 21.5                | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 49           | 21.43               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 50               | 0            | 21.49               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 0            | 21.42               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.44               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.3                | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 21.62               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 21.59               | 21.0±1               | 1.0      |
|         |       |           |       | 25               | 49           | 21.52               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 21.51               | 21.0±1               | 1.0      |

| BW(MHz) | Ch    | Freq(MHz) | Mode  | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---------|-------|-----------|-------|------------------|--------------|---------------------|----------------------|----------|
| 15MHz   | 20825 | 2507.5    | QPSK  | 1                | 0            | 22                  | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.46               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.12               | 22.0±1               | /        |
|         |       |           |       | 36               | 0            | 21.81               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 24           | 21.54               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 49           | 21.32               | 21.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 21.56               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.71               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.29               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 20.69               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 0            | 20.87               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 24           | 20.63               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 49           | 20.48               | 21.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 20.65               | 21.0±1               | 1.0      |
|         | 21100 | 2535      | QPSK  | 1                | 0            | 21.76               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 21.84               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.18               | 22.0±1               | /        |
|         |       |           |       | 36               | 0            | 20.46               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 24           | 20.77               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 49           | 20.94               | 21.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 20.78               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 20.53               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 20.89               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.39               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 0            | 20.24               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 24           | 20.85               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 49           | 20.06               | 21.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 20.83               | 21.0±1               | 1.0      |
|         | 21375 | 2562.5    | QPSK  | 1                | 0            | 22.86               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.07               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.71               | 22.0±1               | /        |
|         |       |           |       | 36               | 0            | 21.99               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 24           | 21.09               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 49           | 21.07               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 75               | 0            | 21.03               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 0            | 21.03               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.18               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.01               | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 0            | 20.9                | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 24           | 20.9                | 21.0±1               | 1.0      |
|         |       |           |       | 36               | 49           | 20.86               | 21.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 20.93               | 21.0±1               | 1.0      |

| BW(MHz) | Ch    | Freq(MHz) | Mode  | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---------|-------|-----------|-------|------------------|--------------|---------------------|----------------------|----------|
| 20MHz   | 20850 | 2510      | QPSK  | 1                | 0            | 22.18               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 21.59               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 21.3                | 22.0±1               | /        |
|         |       |           |       | 50               | 0            | 20.93               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 20.65               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 20.46               | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 20.68               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.58               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.09               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 20.78               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.89               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 20.65               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 20.46               | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 20.72               | 21.0±1               | 1.0      |
|         | 21100 | 2535      | QPSK  | 1                | 0            | 22.83               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.9                | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.76               | 22.0±1               | /        |
|         |       |           |       | 50               | 0            | 21.49               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 21.87               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 21.84               | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 20.78               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 20.63               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.08               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.69               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.46               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 20.76               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 20.04               | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 20.75               | 21.0±1               | 1.0      |
|         | 21350 | 2560      | QPSK  | 1                | 0            | 22.78               | 22.0±1               | /        |
|         |       |           |       | 1                | 49           | 22.11               | 22.0±1               | /        |
|         |       |           |       | 1                | 99           | 22.02               | 22.0±1               | /        |
|         |       |           |       | 50               | 0            | 21.8                | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 21.85               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 21                  | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 21.80               | 21.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 21.26               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 21.23               | 21.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 21.15               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 20.72               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 20.87               | 21.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 20.87               | 21.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 20.82               | 21.0±1               | 1.0      |

**ERP and EIRP****LTE Band 2**

| Frequency                                 | Receiver Reading | Turn table Angle | RX Antenna |       | Substituted |       |              | Absolute Level | Part 24E |        |
|-------------------------------------------|------------------|------------------|------------|-------|-------------|-------|--------------|----------------|----------|--------|
|                                           |                  |                  | Height     | Polar | SG Level    | Cable | Antenna Gain |                | Limit    | Margin |
| (MHz)                                     | (dBμV)           | Degree           | (m)        | (H/V) | (dBm)       | (dB)  | (dB)         | (dBm)          | (dBm)    | (dB)   |
| LTE Band 2 Channel 18607 – 1.4MHz – QPSK  |                  |                  |            |       |             |       |              |                |          |        |
| 1850.70                                   | 78.39            | 214              | 1.7        | H     | 4.42        | 0.31  | 10.40        | 14.51          | 33       | -18.49 |
| 1850.70                                   | 84.91            | 98               | 1.1        | V     | 11.63       | 0.31  | 10.40        | 21.72          | 33       | -11.28 |
| LTE Band 2 Channel 18900 – 1.4MHz – QPSK  |                  |                  |            |       |             |       |              |                |          |        |
| 1880.00                                   | 79.11            | 328              | 1.6        | H     | 5.26        | 0.31  | 10.40        | 15.35          | 33       | -17.65 |
| 1880.00                                   | 84.27            | 277              | 1.9        | V     | 11.15       | 0.31  | 10.40        | 21.24          | 33       | -11.76 |
| LTE Band 2 Channel 19193 – 1.4MHz – QPSK  |                  |                  |            |       |             |       |              |                |          |        |
| 1909.30                                   | 79.89            | 126              | 2.3        | H     | 6.16        | 0.32  | 10.40        | 16.24          | 33       | -16.76 |
| 1909.30                                   | 84.51            | 127              | 2.4        | V     | 11.55       | 0.32  | 10.40        | 21.63          | 33       | -11.37 |
| LTE Band 2 Channel 18607 – 1.4MHz – 16QAM |                  |                  |            |       |             |       |              |                |          |        |
| 1850.70                                   | 79.68            | 57               | 2.1        | H     | 5.71        | 0.31  | 10.40        | 15.80          | 33       | -17.20 |
| 1850.70                                   | 84.09            | 163              | 1.1        | V     | 10.81       | 0.31  | 10.40        | 20.90          | 33       | -12.10 |
| LTE Band 2 Channel 18900 – 1.4MHz – 16QAM |                  |                  |            |       |             |       |              |                |          |        |
| 1880.00                                   | 79.59            | 289              | 1.0        | H     | 5.74        | 0.31  | 10.40        | 15.83          | 33       | -17.17 |
| 1880.00                                   | 84.38            | 26               | 1.4        | V     | 11.26       | 0.31  | 10.40        | 21.35          | 33       | -11.65 |
| LTE Band 2 Channel 19193 – 1.4MHz – 16QAM |                  |                  |            |       |             |       |              |                |          |        |
| 1909.30                                   | 78.90            | 166              | 1.7        | H     | 5.17        | 0.32  | 10.40        | 15.25          | 33       | -17.75 |
| 1909.30                                   | 84.55            | 330              | 2.2        | V     | 11.59       | 0.32  | 10.40        | 21.67          | 33       | -11.33 |
| LTE Band 2 Channel 18615 – 3MHz – QPSK    |                  |                  |            |       |             |       |              |                |          |        |
| 1851.50                                   | 79.82            | 235              | 2.2        | H     | 5.85        | 0.31  | 10.40        | 15.94          | 33       | -17.06 |
| 1851.50                                   | 84.92            | 119              | 2.0        | V     | 11.64       | 0.31  | 10.40        | 21.73          | 33       | -11.27 |
| LTE Band 2 Channel 18900 – 3MHz – QPSK    |                  |                  |            |       |             |       |              |                |          |        |
| 1880.00                                   | 79.61            | 309              | 1.2        | H     | 5.76        | 0.31  | 10.40        | 15.85          | 33       | -17.15 |
| 1880.00                                   | 84.05            | 90               | 1.9        | V     | 10.93       | 0.31  | 10.40        | 21.02          | 33       | -11.98 |
| LTE Band 2 Channel 19185 – 3MHz – QPSK    |                  |                  |            |       |             |       |              |                |          |        |
| 1908.50                                   | 78.92            | 117              | 1.3        | H     | 5.19        | 0.32  | 10.40        | 15.27          | 33       | -17.73 |
| 1908.50                                   | 84.85            | 307              | 1.3        | V     | 11.89       | 0.32  | 10.40        | 21.97          | 33       | -11.03 |
| LTE Band 2 Channel 18615 – 3MHz – 16QAM   |                  |                  |            |       |             |       |              |                |          |        |
| 1851.50                                   | 76.97            | 84               | 1.2        | H     | 3.00        | 0.31  | 10.40        | 13.09          | 33       | -19.91 |
| 1851.50                                   | 84.37            | 13               | 1.5        | V     | 11.09       | 0.31  | 10.40        | 21.18          | 33       | -11.82 |
| LTE Band 2 Channel 18900 – 3MHz – 16QAM   |                  |                  |            |       |             |       |              |                |          |        |
| 1880.00                                   | 76.47            | 138              | 1.2        | H     | 2.62        | 0.31  | 10.40        | 12.71          | 33       | -20.29 |
| 1880.00                                   | 84.73            | 91               | 2.3        | V     | 11.61       | 0.31  | 10.40        | 21.70          | 33       | -11.30 |
| LTE Band 2 Channel 19185 – 3MHz – 16QAM   |                  |                  |            |       |             |       |              |                |          |        |
| 1908.50                                   | 77.46            | 137              | 1.1        | H     | 3.73        | 0.32  | 10.40        | 13.81          | 33       | -19.19 |
| 1908.50                                   | 84.76            | 121              | 2.3        | V     | 11.80       | 0.32  | 10.40        | 21.88          | 33       | -11.12 |
| LTE Band 2 Channel 18625 – 5MHz – QPSK    |                  |                  |            |       |             |       |              |                |          |        |
| 1852.50                                   | 79.09            | 111              | 1.9        | H     | 5.12        | 0.31  | 10.40        | 15.21          | 33       | -17.79 |
| 1852.50                                   | 84.06            | 298              | 1.6        | V     | 10.78       | 0.31  | 10.40        | 20.87          | 33       | -12.13 |
| LTE Band 2 Channel 18900 – 5MHz – QPSK    |                  |                  |            |       |             |       |              |                |          |        |

|                                          |       |     |     |   |       |      |       |       |    |        |
|------------------------------------------|-------|-----|-----|---|-------|------|-------|-------|----|--------|
| 1880.00                                  | 76.36 | 83  | 1.4 | H | 2.51  | 0.31 | 10.40 | 12.60 | 33 | -20.40 |
| 1880.00                                  | 84.49 | 47  | 1.2 | V | 11.37 | 0.31 | 10.40 | 21.46 | 33 | -11.54 |
| LTE Band 2 Channel 19175 – 5MHz – QPSK   |       |     |     |   |       |      |       |       |    |        |
| 1907.50                                  | 76.87 | 221 | 1.6 | H | 3.14  | 0.32 | 10.40 | 13.22 | 33 | -19.78 |
| 1907.50                                  | 84.73 | 339 | 1.3 | V | 11.77 | 0.32 | 10.40 | 21.85 | 33 | -11.15 |
| LTE Band 2 Channel 18625 – 5MHz – 16QAM  |       |     |     |   |       |      |       |       |    |        |
| 1852.50                                  | 79.40 | 290 | 2.1 | H | 5.43  | 0.31 | 10.40 | 15.52 | 33 | -17.48 |
| 1852.50                                  | 84.55 | 140 | 1.4 | V | 11.27 | 0.31 | 10.40 | 21.36 | 33 | -11.64 |
| LTE Band 2 Channel 18900 – 5MHz – 16QAM  |       |     |     |   |       |      |       |       |    |        |
| 1880.00                                  | 79.60 | 57  | 1.9 | H | 5.75  | 0.31 | 10.40 | 15.84 | 33 | -17.16 |
| 1880.00                                  | 84.11 | 218 | 1.6 | V | 10.99 | 0.31 | 10.40 | 21.08 | 33 | -11.92 |
| LTE Band 2 Channel 19175 – 5MHz – 16QAM  |       |     |     |   |       |      |       |       |    |        |
| 1907.50                                  | 76.35 | 38  | 1.6 | H | 2.62  | 0.32 | 10.40 | 12.70 | 33 | -20.30 |
| 1907.50                                  | 84.86 | 284 | 2.3 | V | 11.90 | 0.32 | 10.40 | 21.98 | 33 | -11.02 |
| LTE Band 2 Channel 18650 – 10MHz – QPSK  |       |     |     |   |       |      |       |       |    |        |
| 1855.00                                  | 79.45 | 107 | 1.0 | H | 5.48  | 0.31 | 10.40 | 15.57 | 33 | -17.43 |
| 1855.00                                  | 84.39 | 146 | 1.8 | V | 11.11 | 0.31 | 10.40 | 21.20 | 33 | -11.80 |
| LTE Band 2 Channel 18900 – 10MHz – QPSK  |       |     |     |   |       |      |       |       |    |        |
| 1880.00                                  | 76.39 | 56  | 1.5 | H | 2.54  | 0.31 | 10.40 | 12.63 | 33 | -20.37 |
| 1880.00                                  | 84.05 | 202 | 1.6 | V | 10.93 | 0.31 | 10.40 | 21.02 | 33 | -11.98 |
| LTE Band 2 Channel 19150 – 10MHz – QPSK  |       |     |     |   |       |      |       |       |    |        |
| 1905.00                                  | 76.52 | 69  | 2.4 | H | 2.79  | 0.32 | 10.40 | 12.87 | 33 | -20.13 |
| 1905.00                                  | 84.11 | 359 | 2.3 | V | 11.15 | 0.32 | 10.40 | 21.23 | 33 | -11.77 |
| LTE Band 2 Channel 18650 – 10MHz – 16QAM |       |     |     |   |       |      |       |       |    |        |
| 1855.00                                  | 78.69 | 240 | 2.0 | H | 4.72  | 0.31 | 10.40 | 14.81 | 33 | -18.19 |
| 1855.00                                  | 84.32 | 342 | 1.2 | V | 11.04 | 0.31 | 10.40 | 21.13 | 33 | -11.87 |
| LTE Band 2 Channel 18900 – 10MHz – 16QAM |       |     |     |   |       |      |       |       |    |        |
| 1880.00                                  | 79.44 | 135 | 1.1 | H | 5.59  | 0.31 | 10.40 | 15.68 | 33 | -17.32 |
| 1880.00                                  | 84.97 | 235 | 1.4 | V | 11.85 | 0.31 | 10.40 | 21.94 | 33 | -11.06 |
| LTE Band 2 Channel 19150 – 10MHz – 16QAM |       |     |     |   |       |      |       |       |    |        |
| 1905.00                                  | 77.08 | 130 | 2.2 | H | 3.35  | 0.32 | 10.40 | 13.43 | 33 | -19.57 |
| 1905.00                                  | 84.06 | 281 | 1.8 | V | 11.10 | 0.32 | 10.40 | 21.18 | 33 | -11.82 |
| LTE Band 2 Channel 18675 – 15MHz – QPSK  |       |     |     |   |       |      |       |       |    |        |
| 1857.50                                  | 79.15 | 283 | 1.6 | H | 5.18  | 0.31 | 10.40 | 15.27 | 33 | -17.73 |
| 1857.50                                  | 84.42 | 73  | 2.4 | V | 11.14 | 0.31 | 10.40 | 21.23 | 33 | -11.77 |
| LTE Band 2 Channel 18900 – 15MHz – QPSK  |       |     |     |   |       |      |       |       |    |        |
| 1880.00                                  | 77.61 | 226 | 1.7 | H | 3.76  | 0.31 | 10.40 | 13.85 | 33 | -19.15 |
| 1880.00                                  | 84.10 | 206 | 1.9 | V | 10.98 | 0.31 | 10.40 | 21.07 | 33 | -11.93 |
| LTE Band 2 Channel 19125 – 15MHz – QPSK  |       |     |     |   |       |      |       |       |    |        |
| 1902.50                                  | 79.57 | 331 | 2.1 | H | 5.84  | 0.32 | 10.40 | 15.92 | 33 | -17.08 |
| 1902.50                                  | 84.20 | 148 | 2.2 | V | 11.24 | 0.32 | 10.40 | 21.32 | 33 | -11.68 |
| LTE Band 2 Channel 18675 – 15MHz – 16QAM |       |     |     |   |       |      |       |       |    |        |
| 1857.50                                  | 76.30 | 274 | 2.4 | H | 2.33  | 0.31 | 10.40 | 12.42 | 33 | -20.58 |
| 1857.50                                  | 84.56 | 201 | 2.4 | V | 11.28 | 0.31 | 10.40 | 21.37 | 33 | -11.63 |
| LTE Band 2 Channel 18900 – 15MHz – 16QAM |       |     |     |   |       |      |       |       |    |        |
| 1880.00                                  | 76.49 | 220 | 2.2 | H | 2.64  | 0.31 | 10.40 | 12.73 | 33 | -20.27 |
| 1880.00                                  | 84.78 | 338 | 2.3 | V | 11.66 | 0.31 | 10.40 | 21.75 | 33 | -11.25 |

| LTE Band 2 Channel 19125 – 15MHz – 16QAM |       |     |     |   |       |      |       |       |    |        |
|------------------------------------------|-------|-----|-----|---|-------|------|-------|-------|----|--------|
| 1902.50                                  | 79.10 | 46  | 2.4 | H | 5.37  | 0.32 | 10.40 | 15.45 | 33 | -17.55 |
| 1902.50                                  | 84.61 | 137 | 1.2 | V | 11.65 | 0.32 | 10.40 | 21.73 | 33 | -11.27 |
| LTE Band 2 Channel 18700 – 20MHz – QPSK  |       |     |     |   |       |      |       |       |    |        |
| 1860.00                                  | 77.13 | 173 | 2.4 | H | 3.16  | 0.31 | 10.40 | 13.25 | 33 | -19.75 |
| 1860.00                                  | 84.84 | 180 | 1.7 | V | 11.56 | 0.31 | 10.40 | 21.65 | 33 | -11.35 |
| LTE Band 2 Channel 18900 – 20MHz – QPSK  |       |     |     |   |       |      |       |       |    |        |
| 1880.00                                  | 77.66 | 198 | 2.0 | H | 3.81  | 0.31 | 10.40 | 13.90 | 33 | -19.10 |
| 1880.00                                  | 84.31 | 77  | 2.4 | V | 11.19 | 0.31 | 10.40 | 21.28 | 33 | -11.72 |
| LTE Band 2 Channel 19100 – 20MHz – QPSK  |       |     |     |   |       |      |       |       |    |        |
| 1900.00                                  | 78.74 | 301 | 2.1 | H | 5.01  | 0.32 | 10.40 | 15.09 | 33 | -17.91 |
| 1900.00                                  | 84.43 | 287 | 1.0 | V | 11.47 | 0.32 | 10.40 | 21.55 | 33 | -11.45 |
| LTE Band 2 Channel 18670 – 20MHz – 16QAM |       |     |     |   |       |      |       |       |    |        |
| 1860.00                                  | 76.49 | 232 | 1.5 | H | 2.52  | 0.31 | 10.40 | 12.61 | 33 | -20.39 |
| 1860.00                                  | 84.27 | 238 | 1.7 | V | 10.99 | 0.31 | 10.40 | 21.08 | 33 | -11.92 |
| LTE Band 2 Channel 18900 – 20MHz – 16QAM |       |     |     |   |       |      |       |       |    |        |
| 1880.00                                  | 76.83 | 199 | 1.5 | H | 2.98  | 0.31 | 10.40 | 13.07 | 33 | -19.93 |
| 1880.00                                  | 84.95 | 52  | 2.3 | V | 11.83 | 0.31 | 10.40 | 21.92 | 33 | -11.08 |
| LTE Band 2 Channel 19100 – 20MHz – 16QAM |       |     |     |   |       |      |       |       |    |        |
| 1900.00                                  | 77.26 | 4   | 1.3 | H | 3.53  | 0.32 | 10.40 | 13.61 | 33 | -19.39 |
| 1900.00                                  | 84.88 | 300 | 1.1 | V | 11.92 | 0.32 | 10.40 | 22.00 | 33 | -11.00 |

## 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                                   | 79.85            | 199              | 2.4        | H     | 5.74        | 0.30  | 9.40         | 14.84          | 30      | -15.16 |
| 1710.70                                   | 84.31            | 297              | 1.2        | V     | 10.78       | 0.30  | 9.40         | 19.88          | 30      | -10.12 |
| LTE Band 4 Channel 20175 – 1.4MHz – QPSK  |                  |                  |            |       |             |       |              |                |         |        |
| 1732.50                                   | 76.90            | 326              | 1.4        | H     | 2.79        | 0.30  | 9.40         | 11.89          | 30      | -18.11 |
| 1732.50                                   | 84.01            | 249              | 2.0        | V     | 10.48       | 0.30  | 9.40         | 19.58          | 30      | -10.42 |
| LTE Band 4 Channel 20393 – 1.4MHz – QPSK  |                  |                  |            |       |             |       |              |                |         |        |
| 1754.30                                   | 77.32            | 112              | 1.2        | H     | 3.21        | 0.30  | 9.40         | 12.31          | 30      | -17.69 |
| 1754.30                                   | 84.20            | 327              | 1.1        | V     | 10.67       | 0.30  | 9.40         | 19.77          | 30      | -10.23 |
| LTE Band 4 Channel 19957 – 1.4MHz – 16QAM |                  |                  |            |       |             |       |              |                |         |        |
| 1710.70                                   | 78.96            | 98               | 1.2        | H     | 4.85        | 0.30  | 9.40         | 13.95          | 30      | -16.05 |
| 1710.70                                   | 84.86            | 326              | 2.5        | V     | 11.33       | 0.30  | 9.40         | 20.43          | 30      | -9.57  |
| LTE Band 4 Channel 20175 – 1.4MHz – 16QAM |                  |                  |            |       |             |       |              |                |         |        |
| 1732.50                                   | 77.79            | 334              | 1.3        | H     | 3.68        | 0.30  | 9.40         | 12.78          | 30      | -17.22 |
| 1732.50                                   | 84.31            | 137              | 2.2        | V     | 10.78       | 0.30  | 9.40         | 19.88          | 30      | -10.12 |
| LTE Band 4 Channel 20393 – 1.4MHz – 16QAM |                  |                  |            |       |             |       |              |                |         |        |
| 1754.30                                   | 78.22            | 311              | 1.1        | H     | 4.11        | 0.30  | 9.40         | 13.21          | 30      | -16.79 |
| 1754.30                                   | 84.76            | 217              | 1.2        | V     | 11.23       | 0.30  | 9.40         | 20.33          | 30      | -9.67  |
| LTE Band 4 Channel 19965 – 3MHz – QPSK    |                  |                  |            |       |             |       |              |                |         |        |
| 1711.50                                   | 76.41            | 90               | 1.0        | H     | 2.30        | 0.30  | 9.40         | 11.40          | 30      | -18.60 |

|                                          |       |     |     |   |       |      |      |       |    |        |
|------------------------------------------|-------|-----|-----|---|-------|------|------|-------|----|--------|
| 1711.50                                  | 84.08 | 180 | 1.2 | V | 10.55 | 0.30 | 9.40 | 19.65 | 30 | -10.35 |
| LTE Band 4 Channel 20175 – 3MHz – QPSK   |       |     |     |   |       |      |      |       |    |        |
| 1732.50                                  | 78.46 | 186 | 1.3 | H | 4.35  | 0.30 | 9.40 | 13.45 | 30 | -16.55 |
| 1732.50                                  | 84.83 | 150 | 1.8 | V | 11.30 | 0.30 | 9.40 | 20.40 | 30 | -9.60  |
| LTE Band 4 Channel 20385 – 3MHz – QPSK   |       |     |     |   |       |      |      |       |    |        |
| 1753.50                                  | 76.88 | 227 | 2.0 | H | 2.77  | 0.30 | 9.40 | 11.87 | 30 | -18.13 |
| 1753.50                                  | 84.67 | 135 | 2.0 | V | 11.14 | 0.30 | 9.40 | 20.24 | 30 | -9.76  |
| LTE Band 4 Channel 19965 – 3MHz – 16QAM  |       |     |     |   |       |      |      |       |    |        |
| 1711.50                                  | 79.50 | 155 | 1.6 | H | 5.39  | 0.30 | 9.40 | 14.49 | 30 | -15.51 |
| 1711.50                                  | 84.03 | 300 | 1.2 | V | 10.50 | 0.30 | 9.40 | 19.60 | 30 | -10.40 |
| LTE Band 4 Channel 20175 – 3MHz – 16QAM  |       |     |     |   |       |      |      |       |    |        |
| 1732.50                                  | 78.19 | 112 | 1.3 | H | 4.08  | 0.30 | 9.40 | 13.18 | 30 | -16.82 |
| 1732.50                                  | 84.56 | 21  | 1.6 | V | 11.03 | 0.30 | 9.40 | 20.13 | 30 | -9.87  |
| LTE Band 4 Channel 20385 – 3MHz – 16QAM  |       |     |     |   |       |      |      |       |    |        |
| 1753.50                                  | 79.36 | 5   | 1.9 | H | 5.25  | 0.30 | 9.40 | 14.35 | 30 | -15.65 |
| 1753.50                                  | 84.50 | 249 | 1.7 | V | 10.97 | 0.30 | 9.40 | 20.07 | 30 | -9.93  |
| LTE Band 4 Channel 19975 – 5MHz – QPSK   |       |     |     |   |       |      |      |       |    |        |
| 1712.50                                  | 77.38 | 139 | 1.8 | H | 3.27  | 0.30 | 9.40 | 12.37 | 30 | -17.63 |
| 1712.50                                  | 84.97 | 125 | 1.1 | V | 11.44 | 0.30 | 9.40 | 20.54 | 30 | -9.46  |
| LTE Band 4 Channel 20175 – 5MHz – QPSK   |       |     |     |   |       |      |      |       |    |        |
| 1732.50                                  | 77.75 | 283 | 1.7 | H | 3.64  | 0.30 | 9.40 | 12.74 | 30 | -17.26 |
| 1732.50                                  | 84.49 | 124 | 1.3 | V | 10.96 | 0.30 | 9.40 | 20.06 | 30 | -9.94  |
| LTE Band 4 Channel 20375 – 5MHz – QPSK   |       |     |     |   |       |      |      |       |    |        |
| 1752.50                                  | 77.11 | 263 | 1.6 | H | 3.00  | 0.30 | 9.40 | 12.10 | 30 | -17.90 |
| 1752.50                                  | 84.77 | 94  | 2.4 | V | 11.24 | 0.30 | 9.40 | 20.34 | 30 | -9.66  |
| LTE Band 4 Channel 19975 – 5MHz – 16QAM  |       |     |     |   |       |      |      |       |    |        |
| 1712.50                                  | 79.03 | 178 | 1.7 | H | 4.92  | 0.30 | 9.40 | 14.02 | 30 | -15.98 |
| 1712.50                                  | 84.30 | 23  | 1.5 | V | 10.77 | 0.30 | 9.40 | 19.87 | 30 | -10.13 |
| LTE Band 4 Channel 20175 – 5MHz – 16QAM  |       |     |     |   |       |      |      |       |    |        |
| 1732.50                                  | 78.96 | 48  | 2.0 | H | 4.85  | 0.30 | 9.40 | 13.95 | 30 | -16.05 |
| 1732.50                                  | 84.52 | 197 | 1.2 | V | 10.99 | 0.30 | 9.40 | 20.09 | 30 | -9.91  |
| LTE Band 4 Channel 20375 – 5MHz – 16QAM  |       |     |     |   |       |      |      |       |    |        |
| 1752.50                                  | 77.04 | 84  | 1.3 | H | 2.93  | 0.30 | 9.40 | 12.03 | 30 | -17.97 |
| 1752.50                                  | 84.77 | 21  | 1.3 | V | 11.24 | 0.30 | 9.40 | 20.34 | 30 | -9.66  |
| LTE Band 4 Channel 20000 – 10MHz – QPSK  |       |     |     |   |       |      |      |       |    |        |
| 1715.00                                  | 79.96 | 90  | 1.8 | H | 5.85  | 0.30 | 9.40 | 14.95 | 30 | -15.05 |
| 1715.00                                  | 84.20 | 82  | 2.2 | V | 10.67 | 0.30 | 9.40 | 19.77 | 30 | -10.23 |
| LTE Band 4 Channel 20175 – 10MHz – QPSK  |       |     |     |   |       |      |      |       |    |        |
| 1732.50                                  | 78.64 | 137 | 1.7 | H | 4.53  | 0.30 | 9.40 | 13.63 | 30 | -16.37 |
| 1732.50                                  | 84.41 | 295 | 1.8 | V | 10.88 | 0.30 | 9.40 | 19.98 | 30 | -10.02 |
| LTE Band 4 Channel 20350 – 10MHz – QPSK  |       |     |     |   |       |      |      |       |    |        |
| 1750.00                                  | 79.53 | 283 | 1.9 | H | 5.42  | 0.30 | 9.40 | 14.52 | 30 | -15.48 |
| 1750.00                                  | 84.75 | 287 | 1.7 | V | 11.22 | 0.30 | 9.40 | 20.32 | 30 | -9.68  |
| LTE Band 4 Channel 20000 – 10MHz – 16QAM |       |     |     |   |       |      |      |       |    |        |
| 1715.00                                  | 77.79 | 100 | 1.0 | H | 3.68  | 0.30 | 9.40 | 12.78 | 30 | -17.22 |
| 1715.00                                  | 84.89 | 145 | 1.8 | V | 11.36 | 0.30 | 9.40 | 20.46 | 30 | -9.54  |
| LTE Band 4 Channel 20175 – 10MHz – 16QAM |       |     |     |   |       |      |      |       |    |        |

|                                          |       |     |     |   |       |      |      |       |    |        |
|------------------------------------------|-------|-----|-----|---|-------|------|------|-------|----|--------|
| 1732.50                                  | 79.98 | 273 | 2.5 | H | 5.87  | 0.30 | 9.40 | 14.97 | 30 | -15.03 |
| 1732.50                                  | 84.08 | 150 | 1.6 | V | 10.55 | 0.30 | 9.40 | 19.65 | 30 | -10.35 |
| LTE Band 4 Channel 20350 – 10MHz – 16QAM |       |     |     |   |       |      |      |       |    |        |
| 1750.00                                  | 78.35 | 276 | 2.3 | H | 4.24  | 0.30 | 9.40 | 13.34 | 30 | -16.66 |
| 1750.00                                  | 84.31 | 260 | 1.4 | V | 10.78 | 0.30 | 9.40 | 19.88 | 30 | -10.12 |
| LTE Band 4 Channel 20025 – 15MHz – QPSK  |       |     |     |   |       |      |      |       |    |        |
| 1717.50                                  | 78.62 | 194 | 1.6 | H | 4.51  | 0.30 | 9.40 | 13.61 | 30 | -16.39 |
| 1717.50                                  | 84.30 | 100 | 2.1 | V | 10.77 | 0.30 | 9.40 | 19.87 | 30 | -10.13 |
| LTE Band 4 Channel 20175 – 15MHz – QPSK  |       |     |     |   |       |      |      |       |    |        |
| 1732.50                                  | 78.69 | 23  | 2.1 | H | 4.58  | 0.30 | 9.40 | 13.68 | 30 | -16.32 |
| 1732.50                                  | 84.53 | 69  | 2.4 | V | 11.00 | 0.30 | 9.40 | 20.10 | 30 | -9.90  |
| LTE Band 4 Channel 20325 – 15MHz – QPSK  |       |     |     |   |       |      |      |       |    |        |
| 1747.50                                  | 78.42 | 179 | 2.2 | H | 4.31  | 0.30 | 9.40 | 13.41 | 30 | -16.59 |
| 1747.50                                  | 84.80 | 17  | 1.6 | V | 11.27 | 0.30 | 9.40 | 20.37 | 30 | -9.63  |
| LTE Band 4 Channel 20025 – 15MHz – 16QAM |       |     |     |   |       |      |      |       |    |        |
| 1717.50                                  | 76.44 | 38  | 1.1 | H | 2.33  | 0.30 | 9.40 | 11.43 | 30 | -18.57 |
| 1717.50                                  | 84.19 | 258 | 1.3 | V | 10.66 | 0.30 | 9.40 | 19.76 | 30 | -10.24 |
| LTE Band 4 Channel 20175 – 15MHz – 16QAM |       |     |     |   |       |      |      |       |    |        |
| 1732.50                                  | 79.61 | 351 | 2.3 | H | 5.50  | 0.30 | 9.40 | 14.60 | 30 | -15.40 |
| 1732.50                                  | 84.45 | 147 | 2.5 | V | 10.92 | 0.30 | 9.40 | 20.02 | 30 | -9.98  |
| LTE Band 4 Channel 20325 – 15MHz – 16QAM |       |     |     |   |       |      |      |       |    |        |
| 1747.50                                  | 76.06 | 340 | 1.4 | H | 1.95  | 0.30 | 9.40 | 11.05 | 30 | -18.95 |
| 1747.50                                  | 84.23 | 141 | 1.1 | V | 10.70 | 0.30 | 9.40 | 19.80 | 30 | -10.20 |
| LTE Band 4 Channel 20050 – 20MHz – QPSK  |       |     |     |   |       |      |      |       |    |        |
| 1720.00                                  | 78.78 | 107 | 2.0 | H | 4.67  | 0.30 | 9.40 | 13.77 | 30 | -16.23 |
| 1720.00                                  | 84.94 | 15  | 2.0 | V | 11.41 | 0.30 | 9.40 | 20.51 | 30 | -9.49  |
| LTE Band 4 Channel 20175 – 20MHz – QPSK  |       |     |     |   |       |      |      |       |    |        |
| 1732.50                                  | 76.41 | 116 | 1.5 | H | 2.30  | 0.30 | 9.40 | 11.40 | 30 | -18.60 |
| 1732.50                                  | 84.11 | 45  | 1.8 | V | 10.58 | 0.30 | 9.40 | 19.68 | 30 | -10.32 |
| LTE Band 4 Channel 20300 – 20MHz – QPSK  |       |     |     |   |       |      |      |       |    |        |
| 1745.00                                  | 80.00 | 56  | 1.9 | H | 5.89  | 0.30 | 9.40 | 14.99 | 30 | -15.01 |
| 1745.00                                  | 84.71 | 230 | 2.1 | V | 11.18 | 0.30 | 9.40 | 20.28 | 30 | -9.72  |
| LTE Band 4 Channel 20050 – 20MHz – 16QAM |       |     |     |   |       |      |      |       |    |        |
| 1720.00                                  | 76.44 | 230 | 1.2 | H | 2.33  | 0.30 | 9.40 | 11.43 | 30 | -18.57 |
| 1720.00                                  | 84.25 | 339 | 2.4 | V | 10.72 | 0.30 | 9.40 | 19.82 | 30 | -10.18 |
| LTE Band 4 Channel 20175 – 20MHz – 16QAM |       |     |     |   |       |      |      |       |    |        |
| 1732.50                                  | 77.41 | 76  | 1.9 | H | 3.30  | 0.30 | 9.40 | 12.40 | 30 | -17.60 |
| 1732.50                                  | 84.62 | 230 | 1.7 | V | 11.09 | 0.30 | 9.40 | 20.19 | 30 | -9.81  |
| LTE Band 4 Channel 20300 – 20MHz – 16QAM |       |     |     |   |       |      |      |       |    |        |
| 1745.00                                  | 78.28 | 276 | 2.0 | H | 4.17  | 0.30 | 9.40 | 13.27 | 30 | -16.73 |
| 1745.00                                  | 84.63 | 8   | 1.6 | V | 11.10 | 0.30 | 9.40 | 20.20 | 30 | -9.80  |

## LTE Band 7

| Frequency                                | Receiver Reading | Turn table Angle | RX Antenna |       | Substituted |       |              | Absolute Level | Part 27 |        |
|------------------------------------------|------------------|------------------|------------|-------|-------------|-------|--------------|----------------|---------|--------|
|                                          |                  |                  | Height     | Polar | SG Level    | Cable | Antenna Gain |                | Limit   | Margin |
| (MHz)                                    | (dBμV)           | Degree           | (m)        | (H/V) | (dBm)       | (dB)  | (dB)         | (dBm)          | (dBm)   | (dB)   |
| LTE Band 7 Channel 20775 – 5MHz – QPSK   |                  |                  |            |       |             |       |              |                |         |        |
| 2502.50                                  | 78.65            | 243              | 1.8        | H     | 4.65        | 0.43  | 10.60        | 14.82          | 33      | -18.18 |
| 2502.50                                  | 81.04            | 140              | 1.2        | V     | 10.76       | 0.43  | 10.60        | 20.93          | 33      | -12.07 |
| LTE Band 7 Channel 21100 – 5MHz – QPSK   |                  |                  |            |       |             |       |              |                |         |        |
| 2535.00                                  | 78.67            | 310              | 1.8        | H     | 4.67        | 0.43  | 10.60        | 14.84          | 33      | -18.16 |
| 2535.00                                  | 81.08            | 24               | 2.1        | V     | 10.80       | 0.43  | 10.60        | 20.97          | 33      | -12.03 |
| LTE Band 7 Channel 21425 – 5MHz – QPSK   |                  |                  |            |       |             |       |              |                |         |        |
| 2567.50                                  | 78.62            | 275              | 2.5        | H     | 4.51        | 0.43  | 10.60        | 14.68          | 33      | -18.32 |
| 2567.50                                  | 81.40            | 225              | 1.0        | V     | 11.21       | 0.43  | 10.60        | 21.38          | 33      | -11.62 |
| LTE Band 7 Channel 20775 – 5MHz – 16QAM  |                  |                  |            |       |             |       |              |                |         |        |
| 2502.50                                  | 79.96            | 162              | 1.6        | H     | 5.96        | 0.43  | 10.60        | 16.13          | 33      | -16.87 |
| 2502.50                                  | 81.62            | 42               | 2.1        | V     | 11.34       | 0.43  | 10.60        | 21.51          | 33      | -11.49 |
| LTE Band 7 Channel 21100 – 5MHz – 16QAM  |                  |                  |            |       |             |       |              |                |         |        |
| 2535.00                                  | 79.44            | 29               | 2.4        | H     | 5.44        | 0.43  | 10.60        | 15.61          | 33      | -17.39 |
| 2535.00                                  | 81.28            | 86               | 1.8        | V     | 11.00       | 0.43  | 10.60        | 21.17          | 33      | -11.83 |
| LTE Band 7 Channel 21425 – 5MHz – 16QAM  |                  |                  |            |       |             |       |              |                |         |        |
| 2567.50                                  | 78.96            | 119              | 1.1        | H     | 4.85        | 0.43  | 10.60        | 15.02          | 33      | -17.98 |
| 2567.50                                  | 81.50            | 137              | 1.5        | V     | 11.31       | 0.43  | 10.60        | 21.48          | 33      | -11.52 |
| LTE Band 7 Channel 20800 – 10MHz – QPSK  |                  |                  |            |       |             |       |              |                |         |        |
| 2505.00                                  | 79.09            | 273              | 1.8        | H     | 5.09        | 0.43  | 10.60        | 15.26          | 33      | -17.74 |
| 2505.00                                  | 81.29            | 50               | 1.6        | V     | 11.01       | 0.43  | 10.60        | 21.18          | 33      | -11.82 |
| LTE Band 7 Channel 21100 – 10MHz – QPSK  |                  |                  |            |       |             |       |              |                |         |        |
| 2535.00                                  | 77.30            | 165              | 1.7        | H     | 3.30        | 0.43  | 10.60        | 13.47          | 33      | -19.53 |
| 2535.00                                  | 81.62            | 272              | 2.2        | V     | 11.34       | 0.43  | 10.60        | 21.51          | 33      | -11.49 |
| LTE Band 7 Channel 21400 – 10MHz – QPSK  |                  |                  |            |       |             |       |              |                |         |        |
| 2565.00                                  | 78.48            | 321              | 1.2        | H     | 4.37        | 0.43  | 10.60        | 14.54          | 33      | -18.46 |
| 2565.00                                  | 81.31            | 220              | 1.3        | V     | 11.12       | 0.43  | 10.60        | 21.29          | 33      | -11.71 |
| LTE Band 7 Channel 20800 – 10MHz – 16QAM |                  |                  |            |       |             |       |              |                |         |        |
| 2505.00                                  | 79.33            | 164              | 1.9        | H     | 5.33        | 0.43  | 10.60        | 15.50          | 33      | -17.50 |
| 2505.00                                  | 81.17            | 95               | 2.1        | V     | 10.89       | 0.43  | 10.60        | 21.06          | 33      | -11.94 |
| LTE Band 7 Channel 21100 – 10MHz – 16QAM |                  |                  |            |       |             |       |              |                |         |        |
| 2535.00                                  | 77.22            | 286              | 2.5        | H     | 3.22        | 0.43  | 10.60        | 13.39          | 33      | -19.61 |
| 2535.00                                  | 81.54            | 216              | 1.8        | V     | 11.26       | 0.43  | 10.60        | 21.43          | 33      | -11.57 |
| LTE Band 7 Channel 21400 – 10MHz – 16QAM |                  |                  |            |       |             |       |              |                |         |        |
| 2565.00                                  | 78.69            | 176              | 1.2        | H     | 4.58        | 0.43  | 10.60        | 14.75          | 33      | -18.25 |
| 2565.00                                  | 81.61            | 85               | 2.0        | V     | 11.42       | 0.43  | 10.60        | 21.59          | 33      | -11.41 |
| LTE Band 7 Channel 20825 – 15MHz – QPSK  |                  |                  |            |       |             |       |              |                |         |        |
| 2507.50                                  | 77.65            | 338              | 2.1        | H     | 3.65        | 0.43  | 10.60        | 13.82          | 33      | -19.18 |
| 2507.50                                  | 81.64            | 345              | 2.0        | V     | 11.36       | 0.43  | 10.60        | 21.53          | 33      | -11.47 |
| LTE Band 7 Channel 21100 – 15MHz – QPSK  |                  |                  |            |       |             |       |              |                |         |        |
| 2535.00                                  | 77.84            | 69               | 1.5        | H     | 3.84        | 0.43  | 10.60        | 14.01          | 33      | -18.99 |

|                                          |       |     |     |   |       |      |       |       |    |        |
|------------------------------------------|-------|-----|-----|---|-------|------|-------|-------|----|--------|
| 2535.00                                  | 81.41 | 0   | 2.4 | V | 11.13 | 0.43 | 10.60 | 21.30 | 33 | -11.70 |
| LTE Band 7 Channel 21375 – 15MHz – QPSK  |       |     |     |   |       |      |       |       |    |        |
| 2562.50                                  | 79.50 | 156 | 2.2 | H | 5.39  | 0.43 | 10.60 | 15.56 | 33 | -17.44 |
| 2562.50                                  | 81.22 | 43  | 1.5 | V | 11.03 | 0.43 | 10.60 | 21.20 | 33 | -11.80 |
| LTE Band 7 Channel 20825 – 15MHz – 16QAM |       |     |     |   |       |      |       |       |    |        |
| 2507.50                                  | 79.59 | 328 | 2.0 | H | 5.59  | 0.43 | 10.60 | 15.76 | 33 | -17.24 |
| 2507.50                                  | 81.91 | 66  | 1.1 | V | 11.63 | 0.43 | 10.60 | 21.80 | 33 | -11.20 |
| LTE Band 7 Channel 21100 – 15MHz – 16QAM |       |     |     |   |       |      |       |       |    |        |
| 2535.00                                  | 78.23 | 99  | 1.8 | H | 4.23  | 0.43 | 10.60 | 14.40 | 33 | -18.60 |
| 2535.00                                  | 81.44 | 21  | 1.4 | V | 11.16 | 0.43 | 10.60 | 21.33 | 33 | -11.67 |
| LTE Band 7 Channel 21375 – 15MHz – 16QAM |       |     |     |   |       |      |       |       |    |        |
| 2562.50                                  | 79.79 | 257 | 2.5 | H | 5.68  | 0.43 | 10.60 | 15.85 | 33 | -17.15 |
| 2562.50                                  | 81.13 | 158 | 2.3 | V | 10.94 | 0.43 | 10.60 | 21.11 | 33 | -11.89 |
| LTE Band 7 Channel 20850 – 20MHz – QPSK  |       |     |     |   |       |      |       |       |    |        |
| 2510.00                                  | 78.67 | 52  | 1.2 | H | 4.67  | 0.43 | 10.60 | 14.84 | 33 | -18.16 |
| 2510.00                                  | 81.99 | 257 | 1.3 | V | 11.71 | 0.43 | 10.60 | 21.88 | 33 | -11.12 |
| LTE Band 7 Channel 21100 – 20MHz – QPSK  |       |     |     |   |       |      |       |       |    |        |
| 2535.00                                  | 79.93 | 235 | 1.3 | H | 5.93  | 0.43 | 10.60 | 16.10 | 33 | -16.90 |
| 2535.00                                  | 81.02 | 128 | 1.8 | V | 10.74 | 0.43 | 10.60 | 20.91 | 33 | -12.09 |
| LTE Band 7 Channel 21350 – 20MHz – QPSK  |       |     |     |   |       |      |       |       |    |        |
| 2560.00                                  | 76.37 | 138 | 1.2 | H | 2.26  | 0.43 | 10.60 | 12.43 | 33 | -20.57 |
| 2560.00                                  | 81.54 | 180 | 2.1 | V | 11.35 | 0.43 | 10.60 | 21.52 | 33 | -11.48 |
| LTE Band 7 Channel 20850 – 20MHz – 16QAM |       |     |     |   |       |      |       |       |    |        |
| 2510.00                                  | 77.64 | 265 | 2.2 | H | 3.64  | 0.43 | 10.60 | 13.81 | 33 | -19.19 |
| 2510.00                                  | 81.07 | 210 | 2.4 | V | 10.79 | 0.43 | 10.60 | 20.96 | 33 | -12.04 |
| LTE Band 7 Channel 21100 – 20MHz – 16QAM |       |     |     |   |       |      |       |       |    |        |
| 2535.00                                  | 77.49 | 344 | 2.1 | H | 3.49  | 0.43 | 10.60 | 13.66 | 33 | -19.34 |
| 2535.00                                  | 81.33 | 327 | 2.3 | V | 11.05 | 0.43 | 10.60 | 21.22 | 33 | -11.78 |
| LTE Band 7 Channel 21350 – 20MHz – 16QAM |       |     |     |   |       |      |       |       |    |        |
| 2560.00                                  | 76.98 | 62  | 1.4 | H | 2.87  | 0.43 | 10.60 | 13.04 | 33 | -19.96 |
| 2560.00                                  | 81.15 | 336 | 2.4 | V | 10.96 | 0.43 | 10.60 | 21.13 | 33 | -11.87 |

## 9 Peak-to-Average Ratio

|                   |                      |
|-------------------|----------------------|
| Test Requirement: | 24.232 (d), 27.50(d) |
| Test Method:      | N/A                  |
| Test Mode:        | TX transmitting      |

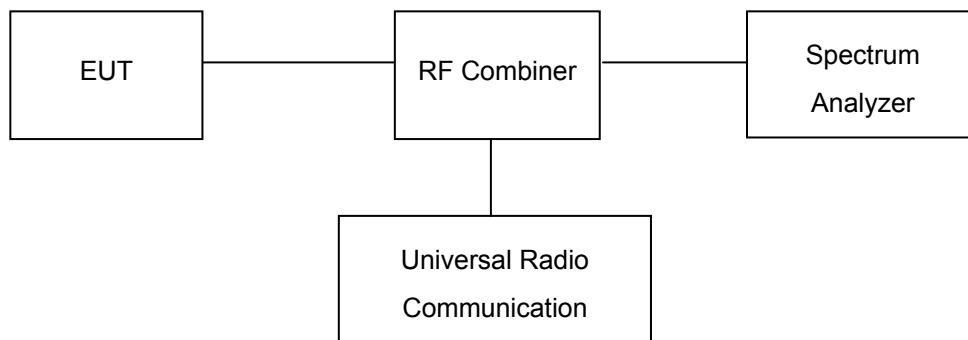
### 9.1 EUT Operation

Operating Environment :

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

### 9.2 Test Procedure

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



### 9.3 Test Result

PASS

#### LTE Band

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

## 10 BANDWIDTH

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

### 10.1 EUT Operation

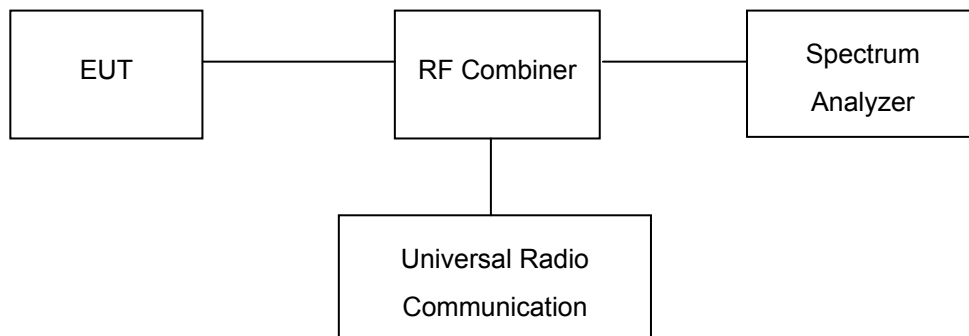
Operating Environment :

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

### 10.2 Test Procedure

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

The resolution bandwidth of the spectrum analyzer was set in the range of 1 to 5 % of the anticipated OBW and the 26 dB & 99%bandwidth was recorded.



### 10.3 Test Result

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

| BW(MHz) | Channel | Frequency (MHz) | Modulation | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---------|---------|-----------------|------------|------------------------------|-----------------------|
| 1.4     | 18607   | 1850.7          | QPSK       | 1.09                         | 1.24                  |
|         |         |                 | 16QAM      | 1.09                         | 1.25                  |
| 1.4     | 18900   | 1880            | QPSK       | 1.09                         | 1.24                  |
|         |         |                 | 16QAM      | 1.09                         | 1.23                  |
| 1.4     | 19193   | 1909.3          | QPSK       | 1.09                         | 1.24                  |
|         |         |                 | 16QAM      | 1.09                         | 1.25                  |
| 3       | 18615   | 1851.5          | QPSK       | 2.72                         | 2.96                  |
|         |         |                 | 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                          | 4.85                  |
|         |         |                 | 16QAM      | 4.49                         | 4.83                  |
| 5       | 18900   | 1880            | QPSK       | 4.5                          | 4.83                  |
|         |         |                 | 16QAM      | 4.49                         | 4.83                  |
| 5       | 19175   | 1907.5          | QPSK       | 4.5                          | 4.83                  |
|         |         |                 | 16QAM      | 4.49                         | 4.83                  |
| 10      | 18650   | 1855            | QPSK       | 8.92                         | 9.37                  |
|         |         |                 | 16QAM      | 8.91                         | 9.37                  |
| 10      | 18900   | 1880            | QPSK       | 8.92                         | 9.36                  |
|         |         |                 | 16QAM      | 8.92                         | 9.33                  |
| 10      | 19150   | 1905            | QPSK       | 8.93                         | 9.38                  |
|         |         |                 | 16QAM      | 8.92                         | 9.36                  |
| 15      | 18675   | 1857.5          | QPSK       | 13.44                        | 14.26                 |
|         |         |                 | 16QAM      | 13.44                        | 14.24                 |
| 15      | 18900   | 1880            | QPSK       | 13.47                        | 14.24                 |
|         |         |                 | 16QAM      | 13.45                        | 14.24                 |

|    |       |        |       |       |       |
|----|-------|--------|-------|-------|-------|
| 15 | 19125 | 1902.5 | QPSK  | 13.46 | 14.25 |
|    |       |        | 16QAM | 13.47 | 14.24 |
| 20 | 18700 | 1860   | QPSK  | 17.87 | 18.74 |
|    |       |        | 16QAM | 17.87 | 18.74 |
| 20 | 18900 | 1880   | QPSK  | 17.9  | 18.76 |
|    |       |        | 16QAM | 17.89 | 18.74 |
| 20 | 19100 | 1900   | QPSK  | 17.88 | 18.75 |
|    |       |        | 16QAM | 17.89 | 18.75 |

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

| BW(MHz) | Channel | Frequency (MHz) | Modulation | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---------|---------|-----------------|------------|------------------------------|-----------------------|
| 1.4     | 19957   | 1710.7          | QPSK       | 1.09                         | 1.23                  |
|         |         |                 | 16QAM      | 1.09                         | 1.24                  |
| 1.4     | 2.175   | 1732.5          | QPSK       | 1.09                         | 1.24                  |
|         |         |                 | 16QAM      | 1.09                         | 1.23                  |
| 1.4     | 20393   | 1754.3          | QPSK       | 1.09                         | 1.24                  |
|         |         |                 | 16QAM      | 1.09                         | 1.24                  |
| 3       | 19965   | 1711.5          | QPSK       | 2.72                         | 2.96                  |
|         |         |                 | 16QAM      | 2.72                         | 2.96                  |
| 3       | 2.175   | 1732.5          | QPSK       | 2.72                         | 2.96                  |
|         |         |                 | 16QAM      | 2.72                         | 2.96                  |
| 3       | 2.385   | 1753.5          | QPSK       | 2.73                         | 2.96                  |
|         |         |                 | 16QAM      | 2.72                         | 2.97                  |
| 5       | 19975   | 1712.5          | QPSK       | 4.5                          | 4.84                  |
|         |         |                 | 16QAM      | 4.5                          | 4.84                  |
| 5       | 20175   | 1732.5          | QPSK       | 4.5                          | 4.85                  |
|         |         |                 | 16QAM      | 4.49                         | 4.85                  |
| 5       | 20375   | 1752.5          | QPSK       | 4.49                         | 4.83                  |
|         |         |                 | 16QAM      | 4.49                         | 4.82                  |
| 10      | 2000    | 1715            | QPSK       | 8.92                         | 9.4                   |
|         |         |                 | 16QAM      | 8.92                         | 9.36                  |
| 10      | 20175   | 1732.5          | QPSK       | 8.92                         | 9.36                  |

|    |       |        |       |       |       |
|----|-------|--------|-------|-------|-------|
|    |       |        | 16QAM | 8.92  | 9.33  |
| 10 | 20350 | 1750   | QPSK  | 8.92  | 9.34  |
|    |       |        | 16QAM | 8.91  | 9.33  |
| 15 | 20025 | 1717.5 | QPSK  | 13.45 | 14.24 |
|    |       |        | 16QAM | 13.45 | 14.24 |
| 15 | 20175 | 1732.5 | QPSK  | 13.47 | 14.24 |
|    |       |        | 16QAM | 13.45 | 14.24 |
| 15 | 20325 | 1747.5 | QPSK  | 13.44 | 14.24 |
|    |       |        | 16QAM | 13.45 | 14.24 |
| 20 | 20050 | 1720   | QPSK  | 17.9  | 18.74 |
|    |       |        | 16QAM | 17.89 | 18.73 |
| 20 | 20175 | 1732.5 | QPSK  | 17.89 | 18.74 |
|    |       |        | 16QAM | 17.89 | 18.75 |
| 20 | 20300 | 1745   | QPSK  | 17.86 | 18.76 |
|    |       |        | 16QAM | 17.87 | 18.77 |

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

| BW(MHz) | Channel | Frequency (MHz) | Modulation | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---------|---------|-----------------|------------|------------------------------|-----------------------|
| 5       | 20775   | 2502.5          | QPSK       | 4.5                          | 4.83                  |
|         |         |                 | 16QAM      | 4.5                          | 4.84                  |
| 5       | 21100   | 2535            | QPSK       | 4.5                          | 4.84                  |
|         |         |                 | 16QAM      | 4.49                         | 4.84                  |
| 5       | 21425   | 2567.5          | QPSK       | 4.49                         | 4.86                  |
|         |         |                 | 16QAM      | 4.49                         | 4.82                  |
| 10      | 20850   | 2510            | QPSK       | 8.92                         | 9.38                  |
|         |         |                 | 16QAM      | 8.92                         | 9.9                   |
| 10      | 21100   | 2535            | QPSK       | 8.92                         | 9.36                  |
|         |         |                 | 16QAM      | 8.91                         | 9.35                  |
| 10      | 21400   | 2565            | QPSK       | 8.93                         | 9.37                  |
|         |         |                 | 16QAM      | 8.92                         | 9.35                  |
| 15      | 20800   | 2505            | QPSK       | 13.44                        | 14.23                 |
|         |         |                 | 16QAM      | 13.45                        | 14.23                 |

|    |       |        |       |       |       |
|----|-------|--------|-------|-------|-------|
| 15 | 21100 | 2535   | QPSK  | 13.48 | 14.26 |
|    |       |        | 16QAM | 13.45 | 14.24 |
| 15 | 21375 | 2562.5 | QPSK  | 13.45 | 14.29 |
|    |       |        | 16QAM | 13.46 | 14.24 |
| 20 | 20825 | 2507.5 | QPSK  | 17.89 | 18.74 |
|    |       |        | 16QAM | 17.88 | 18.75 |
| 20 | 21100 | 2535   | QPSK  | 17.87 | 18.74 |
|    |       |        | 16QAM | 17.86 | 18.75 |
| 20 | 21350 | 2560   | QPSK  | 17.9  | 18.78 |
|    |       |        | 16QAM | 17.91 | 18.79 |

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



LTE band 2 - Low CH QPSK-1.4



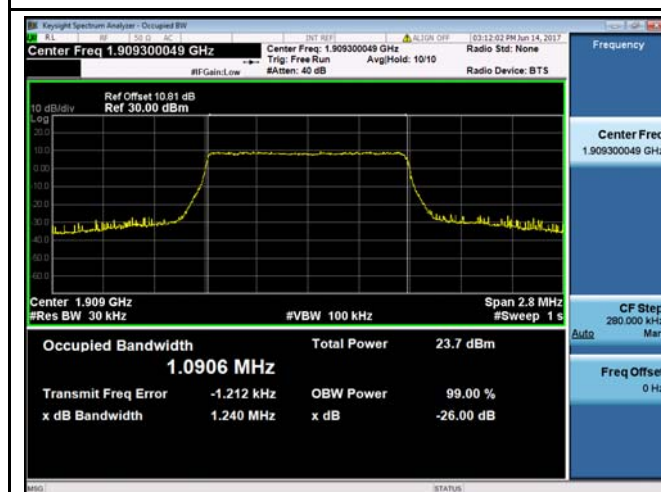
LTE band 2 - Low CH 16QAM-1.4



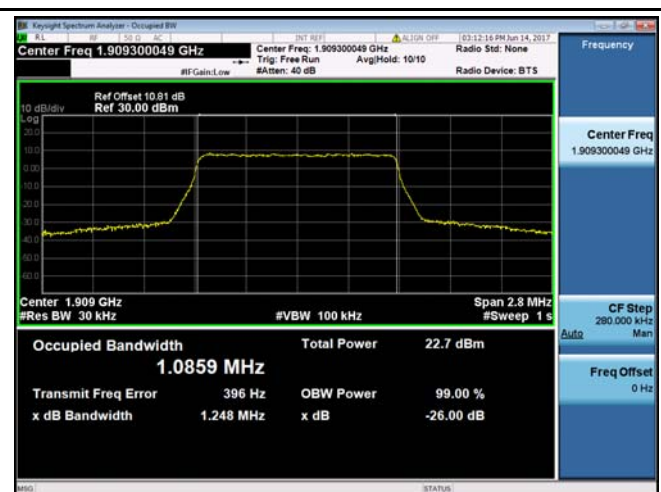
LTE band 2 - Middle CH QPSK-1.4



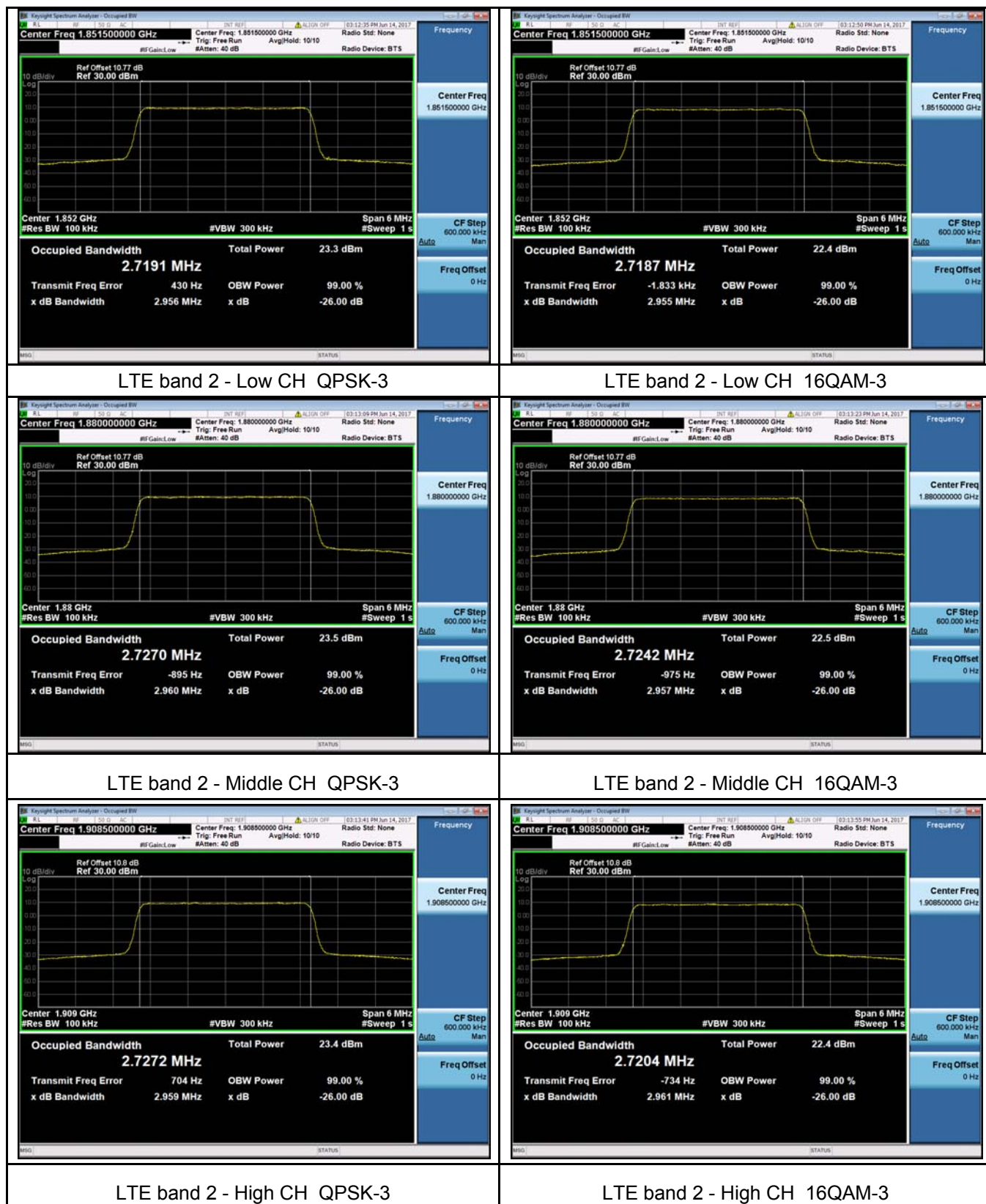
LTE band 2 - Middle CH 16QAM-1.4

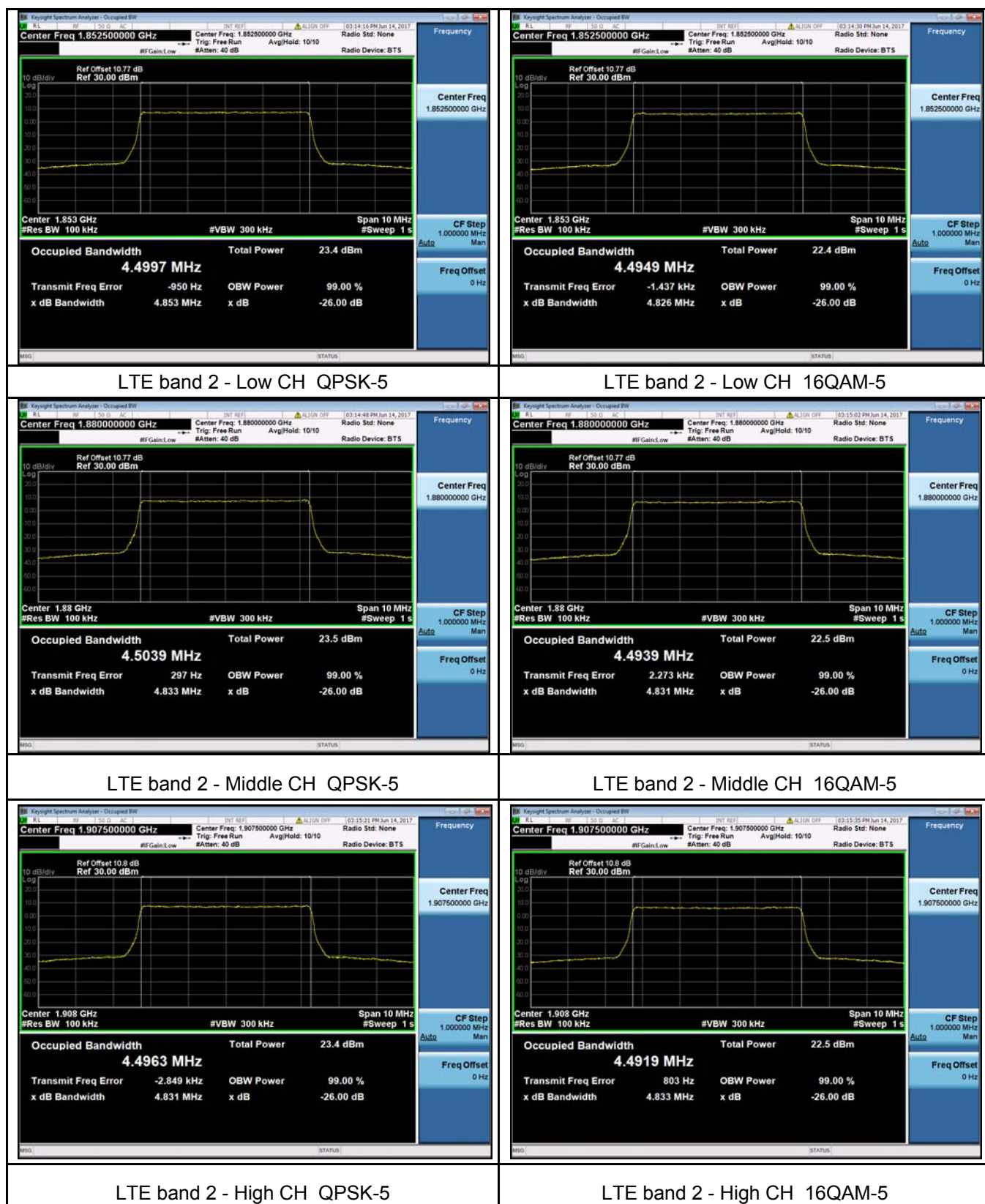


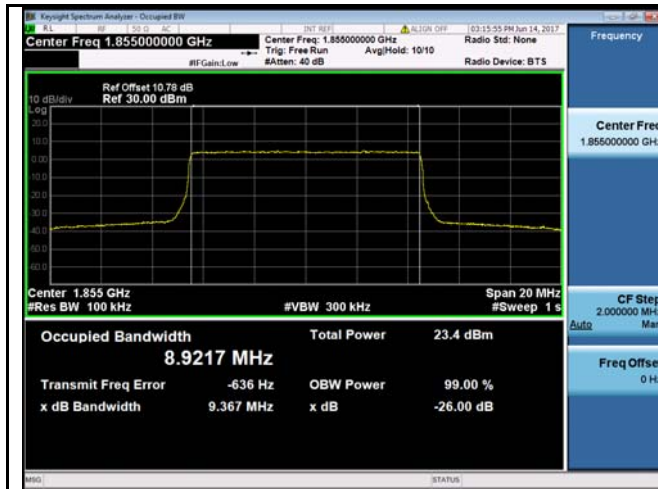
LTE band 2 - High CH QPSK-1.4



LTE band 2 - High CH 16QAM-1.4







LTE band 2 - Low CH QPSK-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

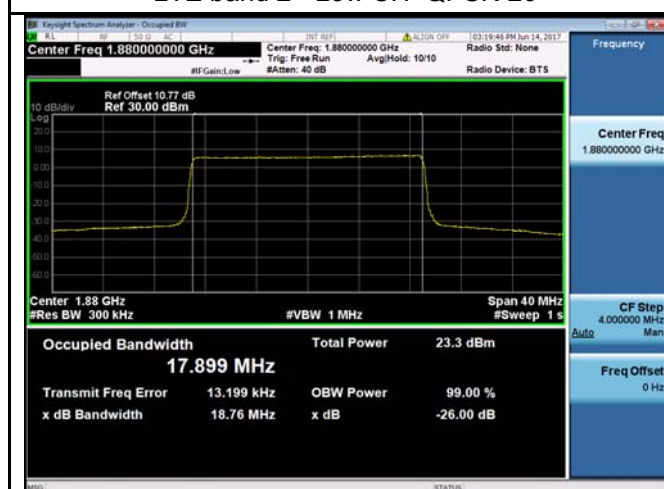




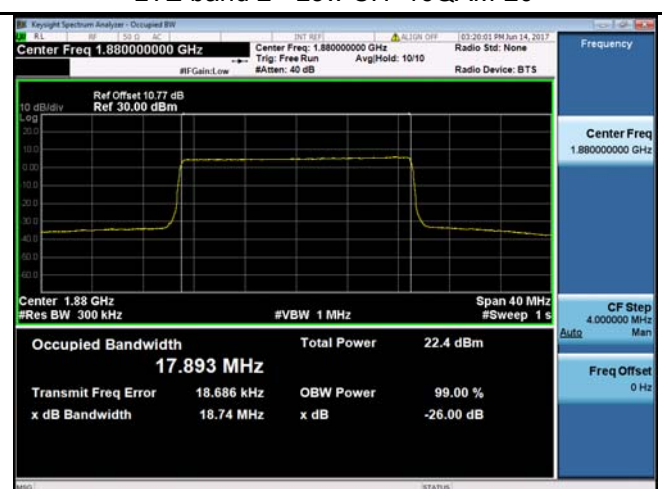
LTE band 2 - Low CH QPSK-20



LTE band 2 - Low CH 16QAM-20



LTE band 2 - Middle CH QPSK-20



LTE band 2 - Middle CH 16QAM-20

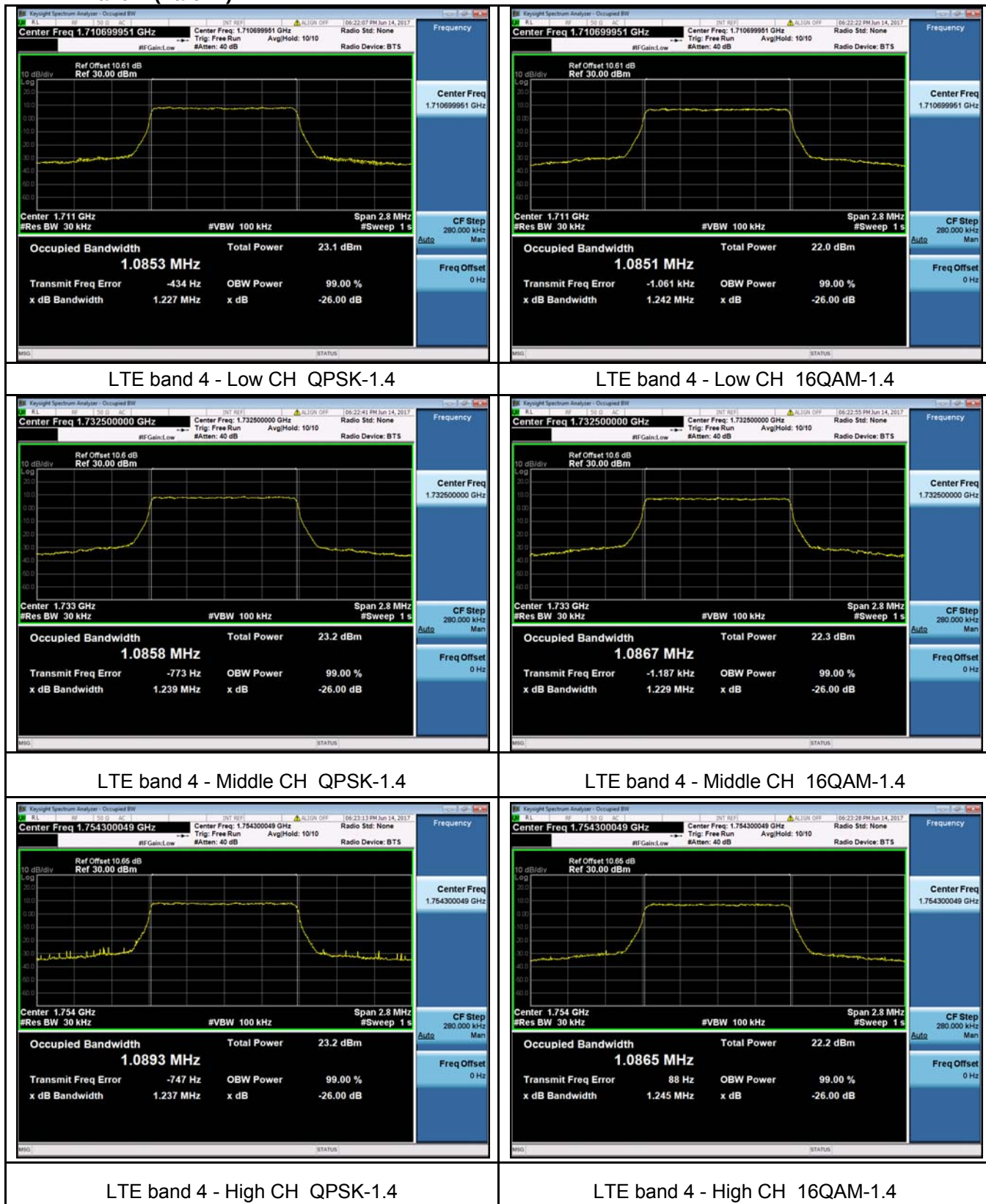


LTE band 2 - High CH QPSK-20

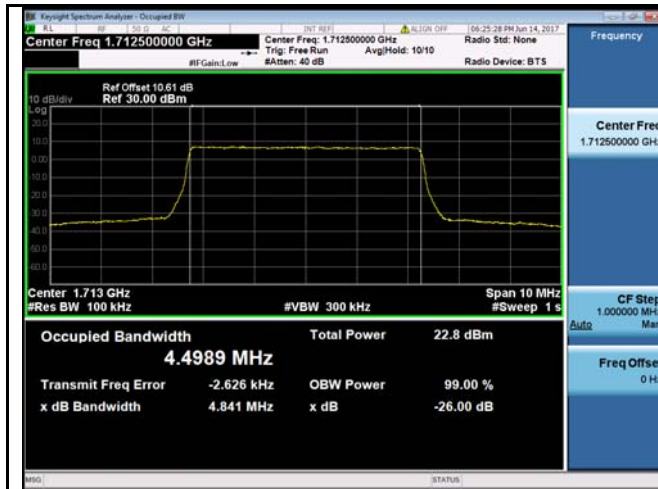


LTE band 2 - High CH 16QAM-20

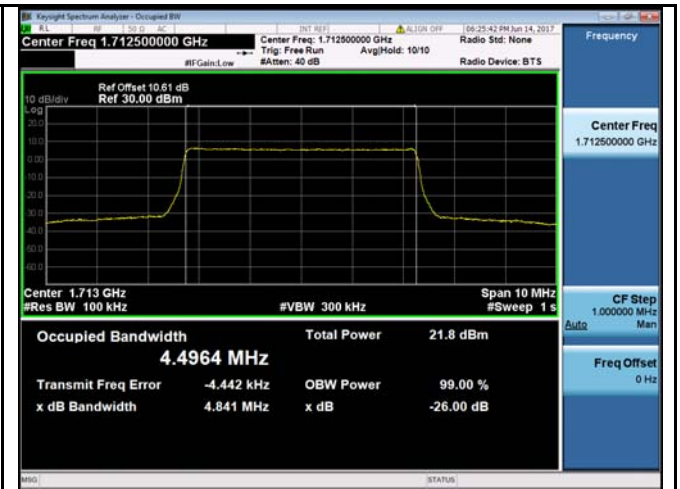
## LTE Band 4 (Part 27)



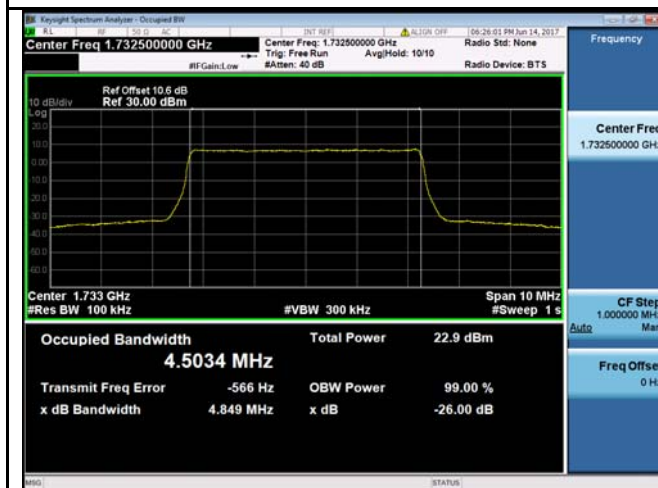




LTE band 4 - Low CH QPSK-5



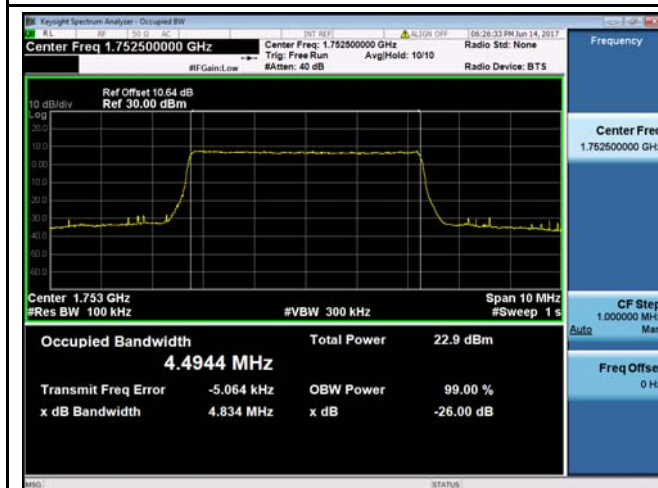
LTE band 4 - Low CH 16QAM-5



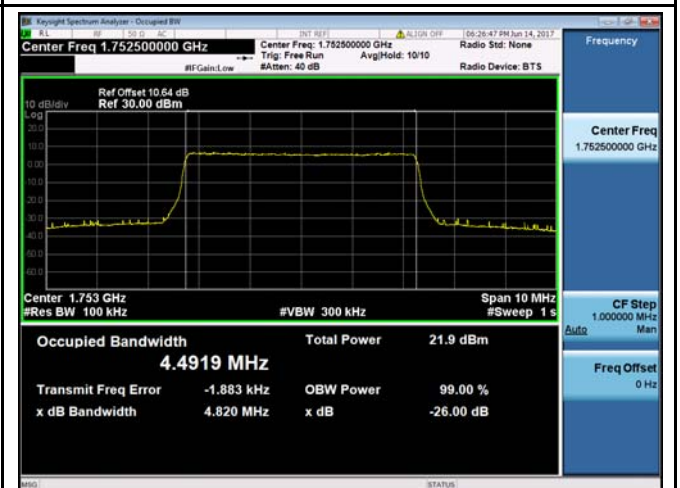
LTE band 4 - Middle CH QPSK-5



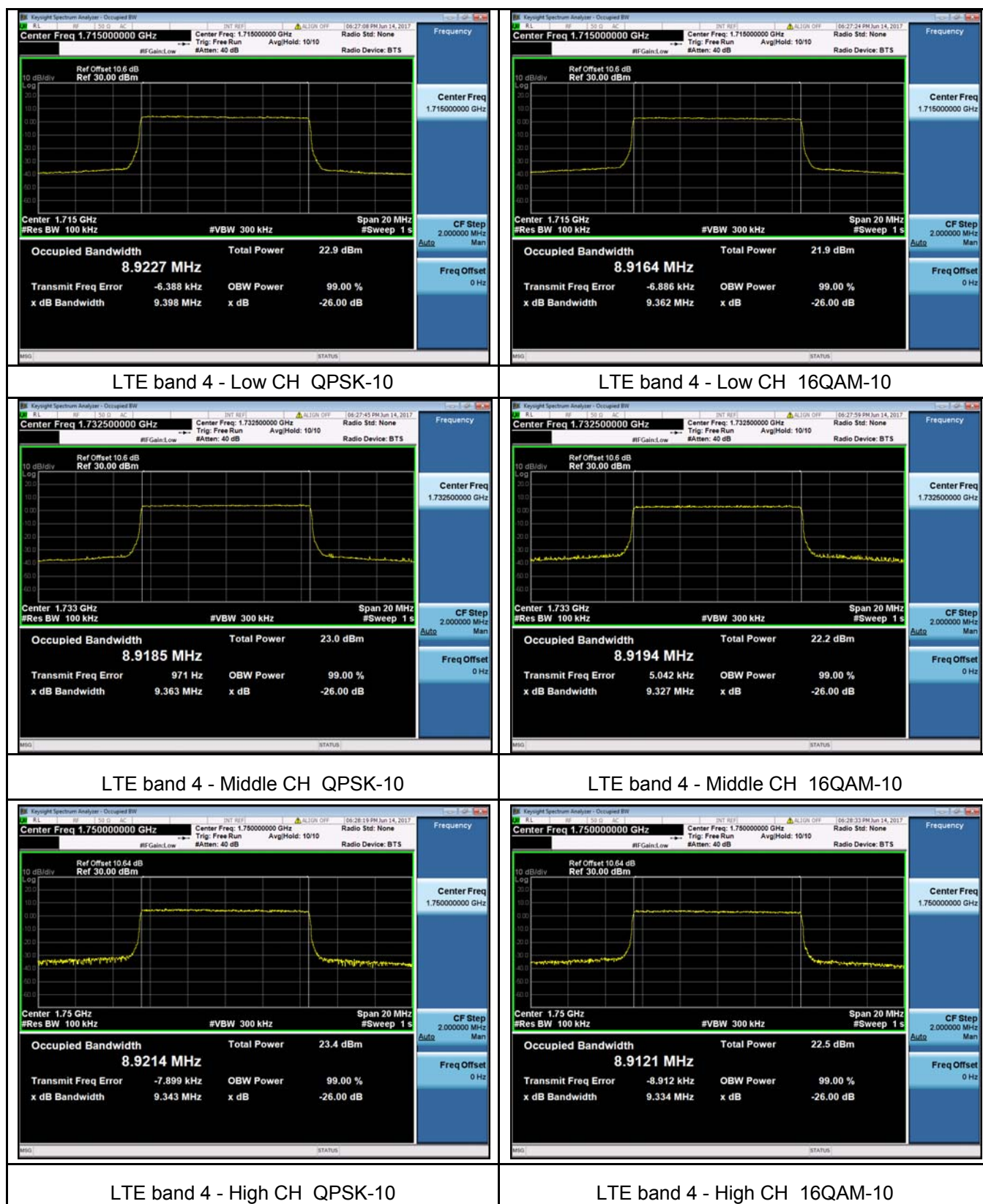
LTE band 4 - Middle CH 16QAM-5

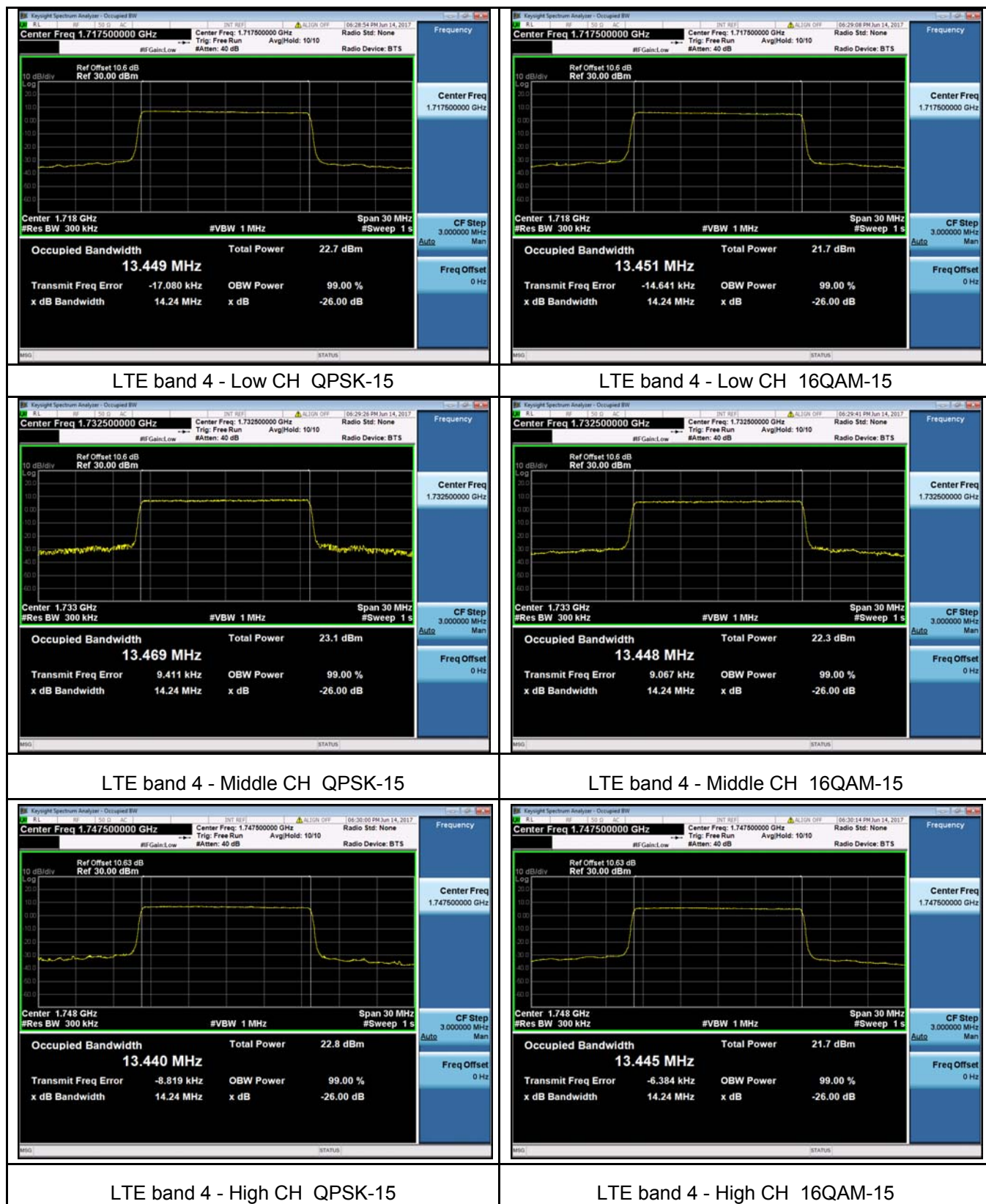


LTE band 4 - High CH QPSK-5



LTE band 4 - High CH 16QAM-5



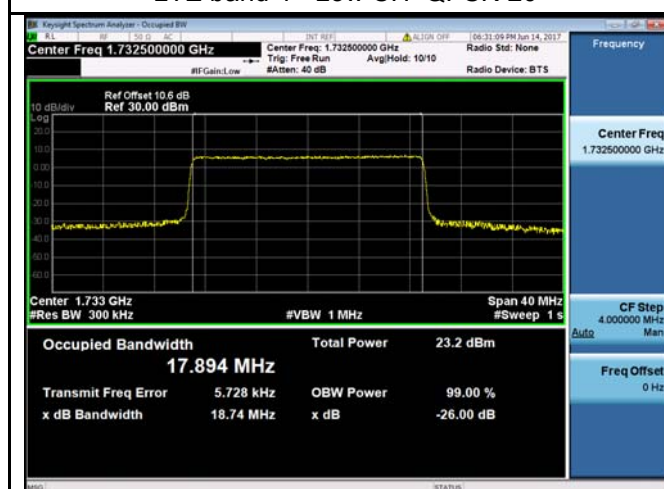




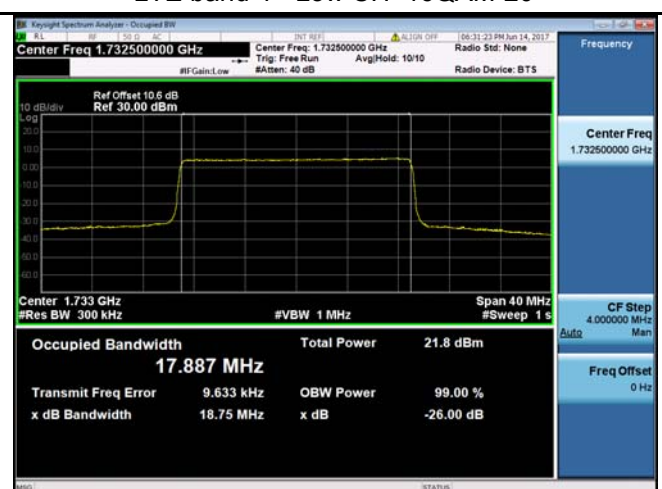
LTE band 4 - Low CH QPSK-20



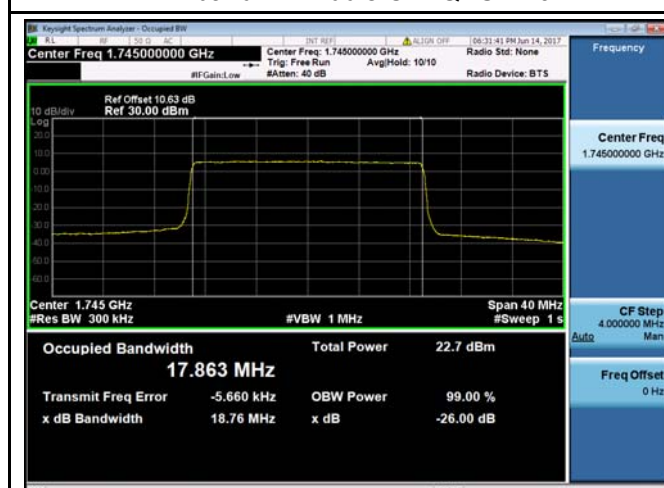
LTE band 4 - Low CH 16QAM-20



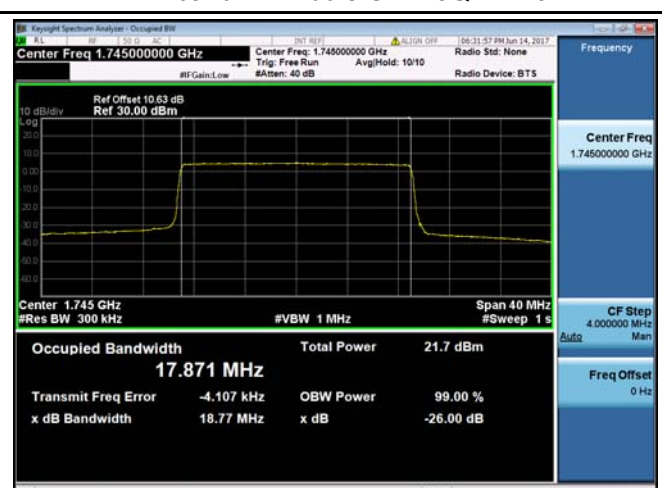
LTE band 4 - Middle CH QPSK-20



LTE band 4 - Middle CH 16QAM-20

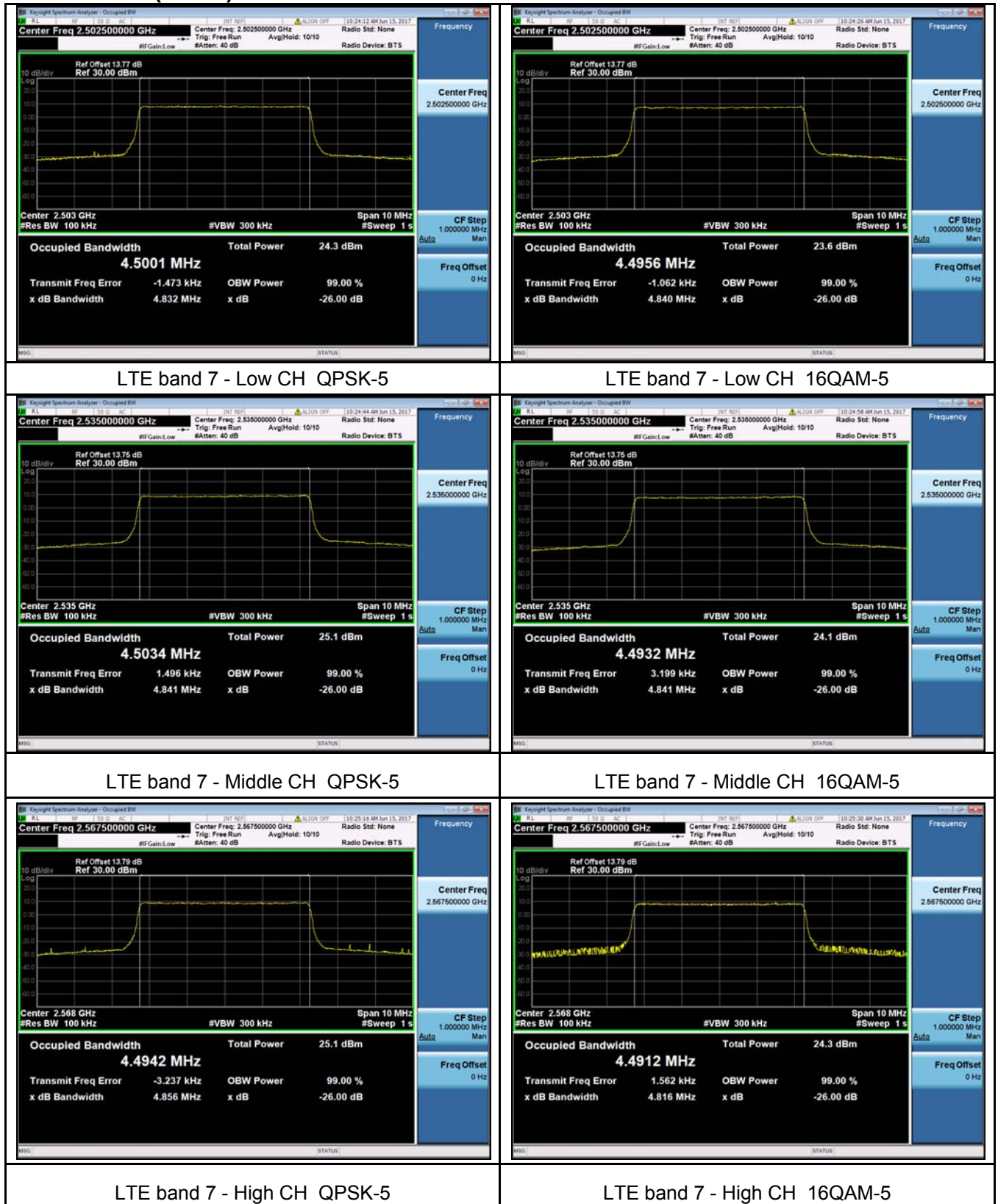


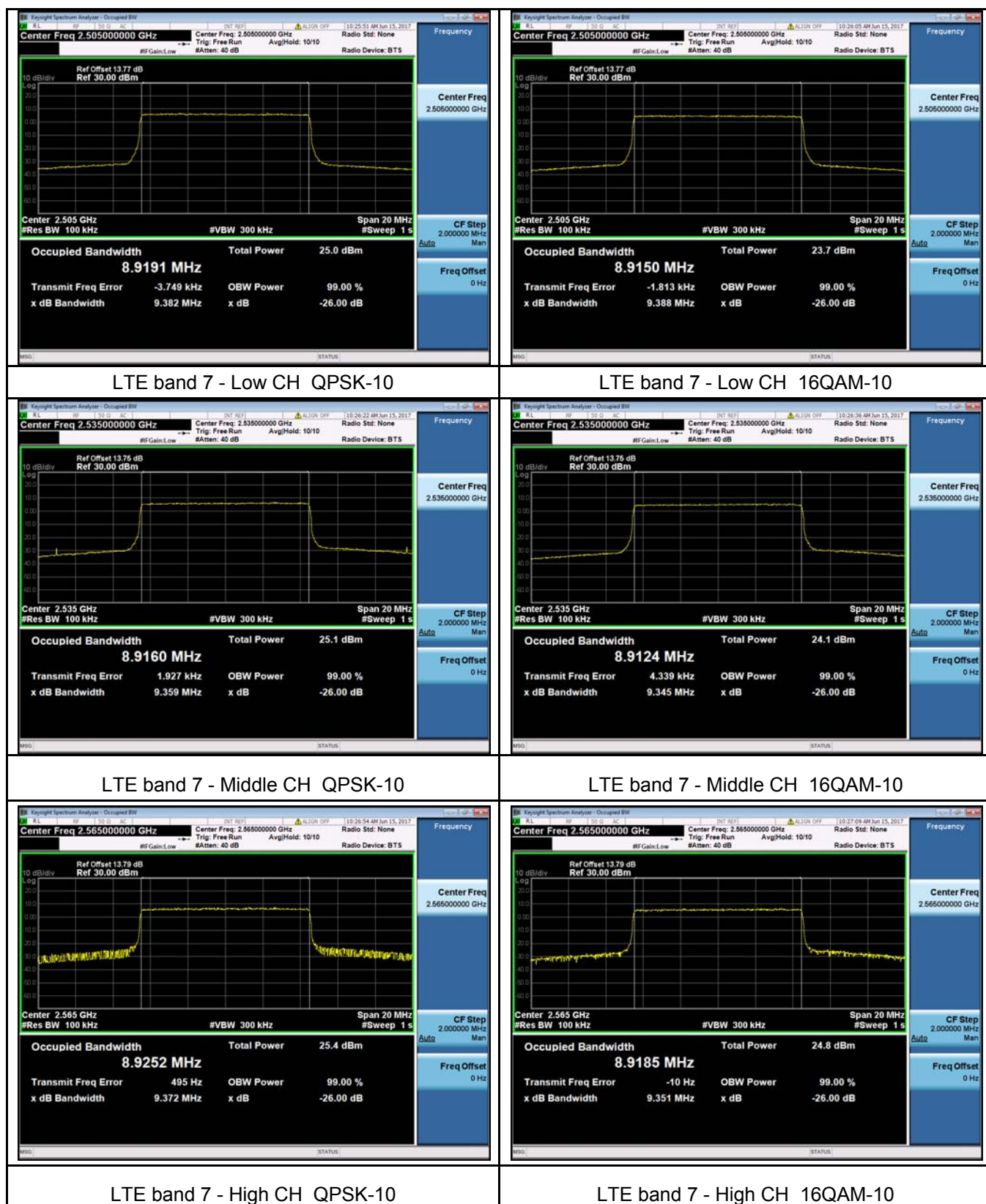
LTE band 4 - High CH QPSK-20



LTE band 4 - High CH 16QAM-20

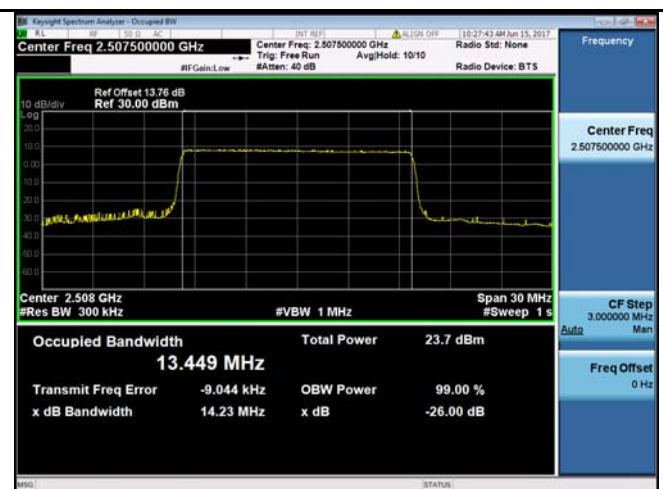
## LTE Band 7 (Part 27)



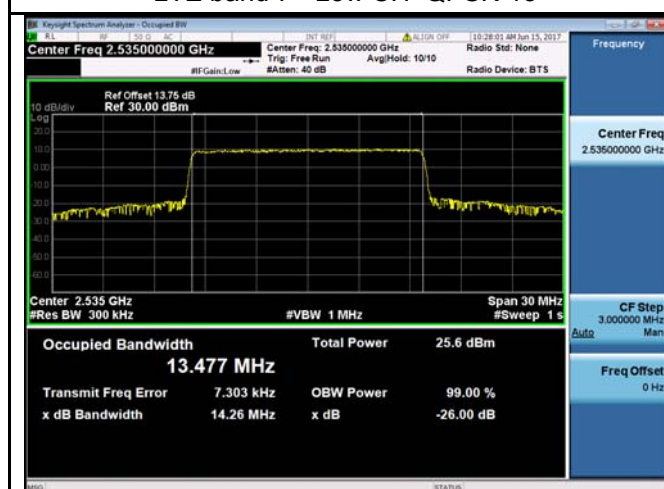




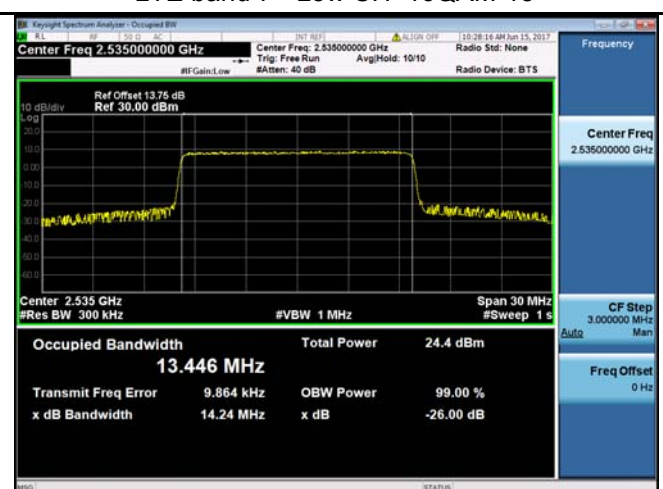
LTE band 7 - Low CH QPSK-15



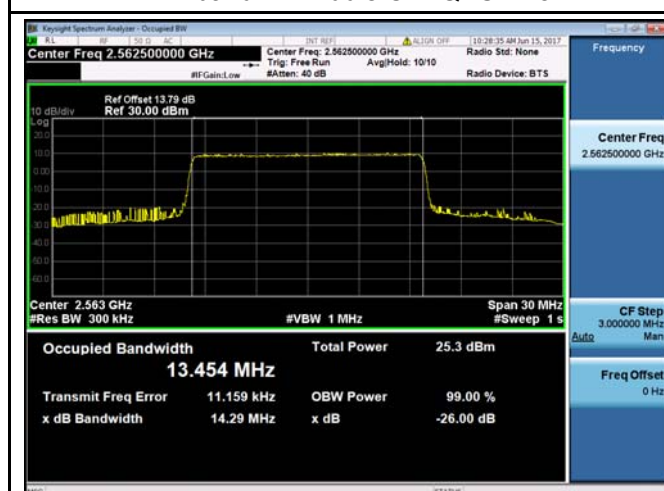
LTE band 7 - Low CH 16QAM-15



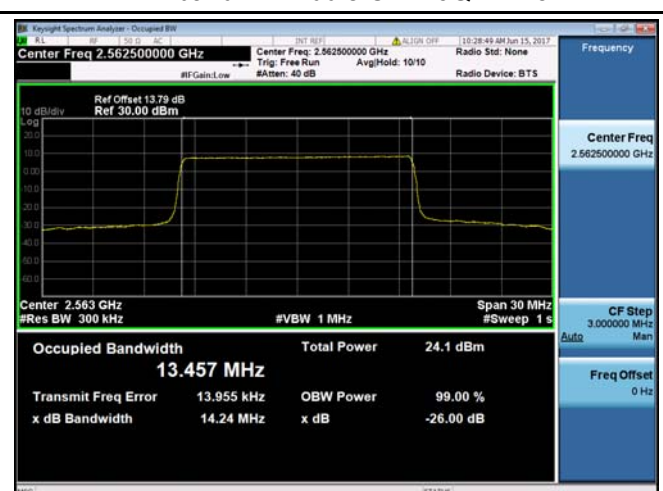
LTE band 7 - Middle CH QPSK-15



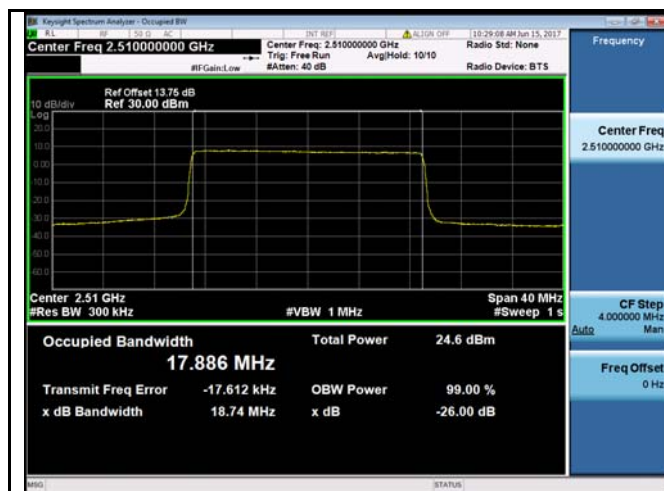
LTE band 7 - Middle CH 16QAM-15



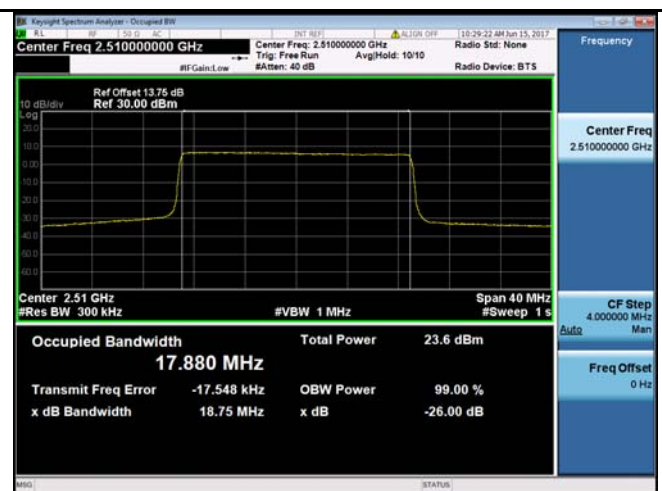
LTE band 7 - High CH QPSK-15



LTE band 7 - High CH 16QAM-15



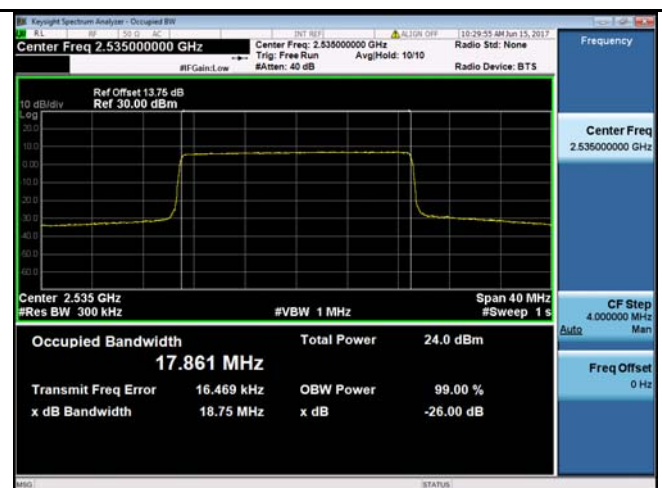
LTE band 7 - Low CH QPSK-20



LTE band 7 - Low CH 16QAM-20



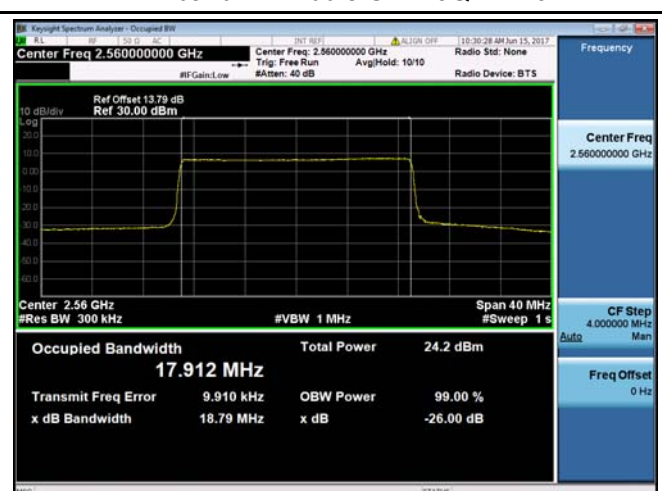
LTE band 7 - Middle CH QPSK-20



LTE band 7 - Middle CH 16QAM-20



LTE band 7 - High CH QPSK-20



LTE band 7 - High CH 16QAM-20

## 11 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

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

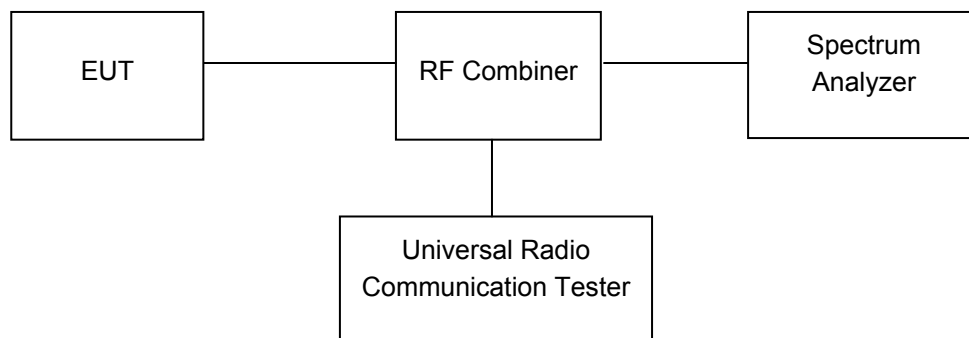
### 11.1 EUT Operation

Operating Environment :

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

### 11.2 Test Procedure

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



### 11.3 Test Result

PASS

#### LTE Band

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

## 12 SPURIOUS RADIATED EMISSIONS

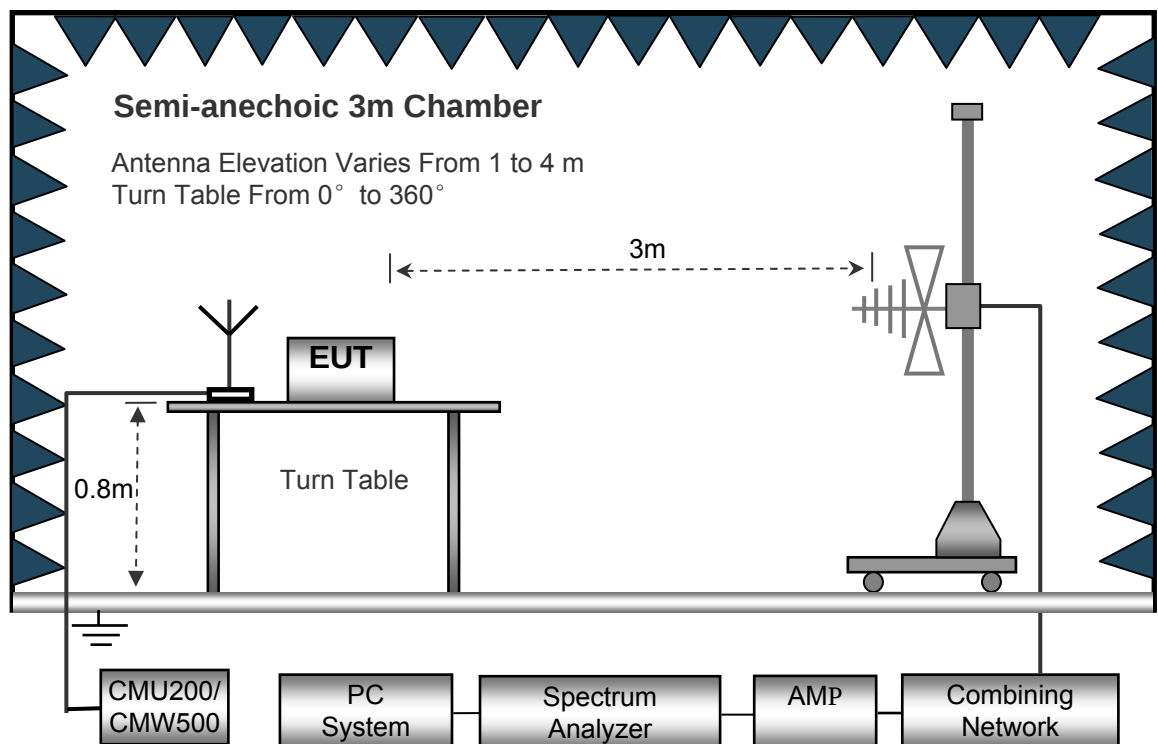
|                   |                                                |
|-------------------|------------------------------------------------|
| Test Requirement: | FCC Part 2.1053, 24.238, 27.53(h), 27.53(m)(4) |
| Test Method:      | TIA/EIA-603-D:2010<br>KDB971168 D01 v02r02     |
| Test Mode:    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

### 12.1 EUT Operation

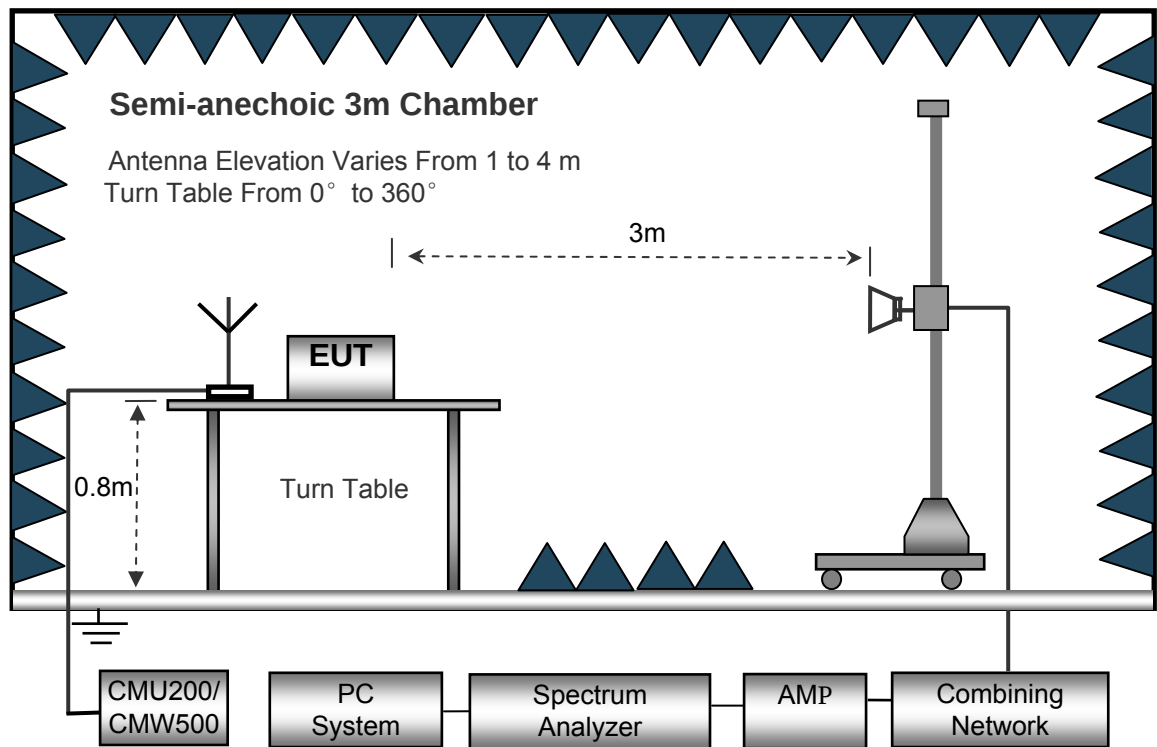
|                         |           |
|-------------------------|-----------|
| Operating Environment : |           |
| Temperature:            | 23.5 °C   |
| Humidity:               | 52.1 % RH |
| Atmospheric Pressure:   | 101.2kPa  |

### 12.2 Test Setup

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



The test setup for emission measurement above 1 GHz.



12.3 Spectrum Analyzer Setup

30MHz ~ 1GHz

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

Above 1GHz

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

## 12.4 Test Procedure

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

## 12.5 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 |                  |                  |            |       |             |       |              |                |        |        |
| 221.53                   | 47.16            | 88               | 2.0        | H     | -63.35      | 0.15  | 0.00         | -63.50         | -13.00 | -50.50 |
| 221.53                   | 37.75            | 337              | 1.6        | V     | -69.84      | 0.15  | 0.00         | -69.99         | -13.00 | -56.99 |
| 3701.40                  | 65.95            | 78               | 2.2        | H     | -45.59      | 2.37  | 12.50        | -35.46         | -13.00 | -22.46 |
| 3701.40                  | 59.98            | 243              | 1.9        | V     | -49.83      | 2.37  | 12.50        | -39.70         | -13.00 | -26.70 |
| 5552.10                  | 53.58            | 225              | 1.7        | H     | -56.03      | 2.86  | 12.90        | -45.99         | -13.00 | -32.99 |
| 5552.10                  | 44.52            | 336              | 1.2        | V     | -64.15      | 2.86  | 12.90        | -54.11         | -13.00 | -41.34 |
| LTE BAND 2 Channel 18900 |                  |                  |            |       |             |       |              |                |        |        |
| 221.53                   | 46.44            | 267              | 1.9        | H     | -64.07      | 0.15  | 0.00         | -64.22         | -13.00 | -51.22 |
| 221.53                   | 37.19            | 205              | 1.8        | V     | -70.40      | 0.15  | 0.00         | -70.55         | -13.00 | -57.55 |
| 3760.00                  | 58.33            | 299              | 1.2        | H     | -53.21      | 2.37  | 12.50        | -43.08         | -13.00 | -30.08 |
| 3760.00                  | 53.49            | 31               | 1.9        | V     | -56.32      | 2.37  | 12.50        | -46.19         | -13.00 | -33.19 |
| 5640.00                  | 47.41            | 134              | 1.8        | H     | -62.20      | 2.86  | 12.90        | -52.16         | -13.00 | -39.16 |
| 5640.00                  | 36.98            | 232              | 1.8        | V     | -71.90      | 2.86  | 12.90        | -61.86         | -13.00 | -48.86 |
| LTE BAND 2 Channel 19193 |                  |                  |            |       |             |       |              |                |        |        |
| 221.53                   | 46.91            | 97               | 1.0        | H     | -63.60      | 0.15  | 0.00         | -63.75         | -13.00 | -50.75 |
| 221.53                   | 37.73            | 5                | 1.7        | V     | -69.86      | 0.15  | 0.00         | -70.01         | -13.00 | -57.01 |
| 3818.60                  | 52.28            | 117              | 1.7        | H     | -58.57      | 2.37  | 12.60        | -48.34         | -13.00 | -35.34 |
| 3818.60                  | 46.14            | 283              | 2.1        | V     | -63.17      | 2.37  | 12.60        | -52.94         | -13.00 | -39.94 |
| 5727.90                  | 39.67            | 242              | 1.9        | H     | -69.68      | 2.86  | 12.90        | -59.64         | -13.00 | -46.64 |
| 5727.90                  | 29.01            | 138              | 1.3        | V     | -79.49      | 2.86  | 12.90        | -69.45         | -13.00 | -56.45 |

## 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 |                  |                  |            |       |             |       |              |                |        |        |
| 221.53                   | 39.48            | 353              | 1.1        | H     | -71.03      | 0.15  | 0.00         | -71.18         | -13.00 | -58.18 |
| 221.53                   | 29.83            | 101              | 1.6        | V     | -77.76      | 0.15  | 0.00         | -77.91         | -13.00 | -64.91 |
| 3421.40                  | 65.95            | 85               | 1.4        | H     | -47.10      | 2.34  | 12.40        | -37.04         | -13.00 | -24.04 |
| 3421.40                  | 59.98            | 294              | 1.8        | V     | -51.17      | 2.34  | 12.40        | -41.11         | -13.00 | -28.11 |
| 5132.10                  | 53.58            | 4                | 1.2        | H     | -55.83      | 2.79  | 12.70        | -45.92         | -13.00 | -32.92 |
| 5132.10                  | 44.73            | 109              | 1.5        | V     | -64.04      | 2.79  | 12.70        | -54.13         | -13.00 | -41.23 |
| LTE BAND 4 Channel 20175 |                  |                  |            |       |             |       |              |                |        |        |
| 221.53                   | 39.99            | 163              | 1.7        | H     | -70.52      | 0.15  | 0.00         | -70.67         | -13.00 | -57.67 |
| 221.53                   | 28.88            | 289              | 1.2        | V     | -78.71      | 0.15  | 0.00         | -78.86         | -13.00 | -65.86 |
| 3465.00                  | 59.28            | 197              | 1.2        | H     | -53.77      | 2.37  | 12.50        | -43.64         | -13.00 | -30.64 |
| 3465.00                  | 53.82            | 281              | 2.2        | V     | -57.33      | 2.37  | 12.50        | -47.20         | -13.00 | -34.20 |
| 5197.50                  | 47.56            | 227              | 1.7        | H     | -61.85      | 2.79  | 12.70        | -51.94         | -13.00 | -38.94 |
| 5197.50                  | 38.65            | 186              | 2.1        | V     | -70.12      | 2.79  | 12.70        | -60.21         | -13.00 | -47.21 |
| LTE BAND 4 Channel 20393 |                  |                  |            |       |             |       |              |                |        |        |
| 221.53                   | 39.12            | 266              | 1.5        | H     | -71.39      | 0.15  | 0.00         | -71.54         | -13.00 | -58.54 |
| 221.53                   | 31.92            | 357              | 1.8        | V     | -75.67      | 0.15  | 0.00         | -75.82         | -13.00 | -62.82 |
| 3508.60                  | 52.01            | 191              | 2.2        | H     | -60.63      | 2.37  | 12.50        | -50.50         | -13.00 | -37.50 |
| 3508.60                  | 45.51            | 24               | 1.1        | V     | -65.22      | 2.37  | 12.50        | -55.09         | -13.00 | -42.09 |
| 5262.90                  | 39.33            | 360              | 2.0        | H     | -70.25      | 2.81  | 12.80        | -60.26         | -13.00 | -47.26 |
| 5262.90                  | 29.73            | 335              | 1.5        | V     | -79.07      | 2.81  | 12.80        | -69.08         | -13.00 | -56.08 |

**LTE Band 7**

| Frequency                | Receiver Reading | Turn table Angle | RX Antenna |       | Substituted |       |              | Absolute Level | Result |        |
|--------------------------|------------------|------------------|------------|-------|-------------|-------|--------------|----------------|--------|--------|
|                          |                  |                  | Height     | Polar | SG Level    | Cable | Antenna Gain |                | Limit  | Margin |
| (MHz)                    | (dBμV)           | Degree           | (m)        | (H/V) | (dBm)       | (dB)  | (dB)         | (dBm)          | (dBm)  | (dB)   |
| LTE BAND 7 Channel 20775 |                  |                  |            |       |             |       |              |                |        |        |
| 221.53                   | 38.79            | 105              | 1.4        | H     | -71.72      | 0.15  | 0.00         | -71.87         | -25.00 | -46.87 |
| 221.53                   | 29.16            | 340              | 2.0        | V     | -78.43      | 0.15  | 0.00         | -78.58         | -25.00 | -53.58 |
| 5005.00                  | 65.95            | 163              | 2.0        | H     | -43.29      | 2.79  | 12.70        | -33.38         | -25.00 | -8.38  |
| 5005.00                  | 59.98            | 6                | 1.5        | V     | -48.79      | 2.79  | 12.70        | -38.88         | -25.00 | -13.88 |
| 7507.50                  | 53.58            | 150              | 1.3        | H     | -52.96      | 3.12  | 11.50        | -44.58         | -25.00 | -19.58 |
| 7507.50                  | 44.73            | 18               | 1.4        | V     | -60.70      | 3.12  | 11.50        | -52.32         | -25.00 | -27.32 |
| LTE BAND 7 Channel 21100 |                  |                  |            |       |             |       |              |                |        |        |
| 221.53                   | 39.78            | 64               | 1.6        | H     | -70.73      | 0.15  | 0.00         | -70.88         | -25.00 | -45.88 |
| 221.53                   | 29.28            | 70               | 1.2        | V     | -78.31      | 0.15  | 0.00         | -78.46         | -25.00 | -53.46 |
| 5070.00                  | 58.97            | 356              | 1.5        | H     | -50.27      | 2.37  | 12.50        | -40.14         | -25.00 | -15.14 |
| 5070.00                  | 53.54            | 177              | 1.1        | V     | -55.23      | 2.37  | 12.50        | -45.10         | -25.00 | -20.10 |
| 7605.00                  | 45.90            | 122              | 1.7        | H     | -60.64      | 3.12  | 11.50        | -52.26         | -25.00 | -27.26 |
| 7605.00                  | 37.04            | 152              | 1.8        | V     | -68.39      | 3.12  | 11.50        | -60.01         | -25.00 | -35.01 |
| LTE BAND 7 Channel 21425 |                  |                  |            |       |             |       |              |                |        |        |
| 221.53                   | 40.22            | 89               | 1.8        | H     | -70.29      | 0.15  | 0.00         | -70.44         | -25.00 | -45.44 |
| 221.53                   | 28.49            | 334              | 1.3        | V     | -79.10      | 0.15  | 0.00         | -79.25         | -25.00 | -54.25 |
| 5135.00                  | 52.42            | 293              | 2.1        | H     | -56.99      | 2.37  | 12.50        | -46.86         | -25.00 | -21.86 |
| 5135.00                  | 46.97            | 43               | 1.4        | V     | -61.80      | 2.37  | 12.50        | -51.67         | -25.00 | -26.67 |
| 7702.50                  | 38.54            | 76               | 1.8        | H     | -66.69      | 3.12  | 11.50        | -58.31         | -25.00 | -33.31 |
| 7702.50                  | 30.75            | 73               | 1.3        | V     | -74.14      | 3.12  | 11.50        | -65.76         | -25.00 | -40.76 |

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

2) Margin = Absolute Level - Limit

## 13 Band Edge Measurement

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

### 13.1 EUT Operation

Operating Environment :

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

### 13.2 Test Procedure

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

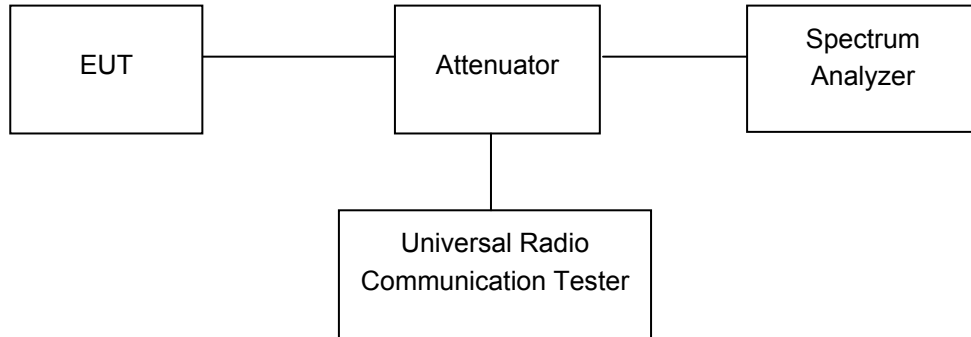
According to FCC Part 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the TX transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

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

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

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

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



### 13.3 Test Result

PASS

#### LTE Band

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

## 14 FREQUENCY STABILITY

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

### 14.1 EUT Operation

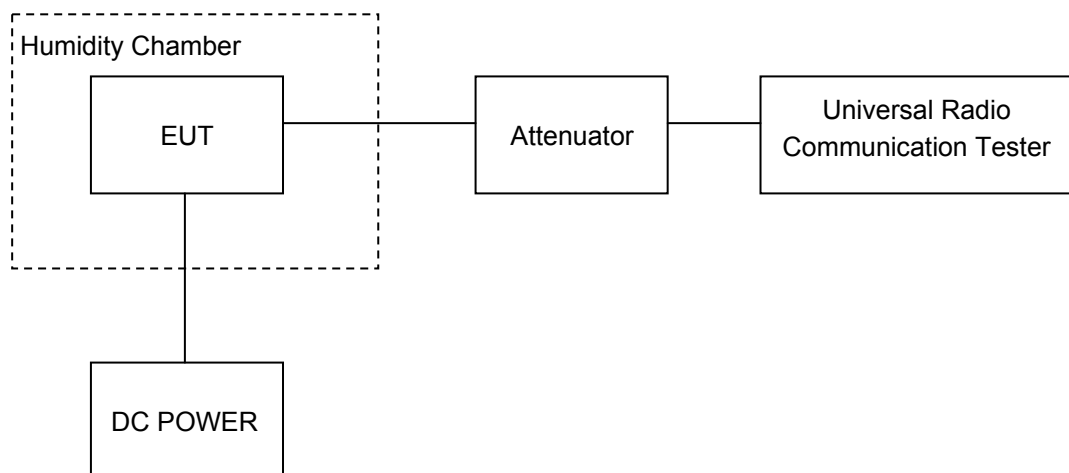
|                         |           |
|-------------------------|-----------|
| Operating Environment : |           |
| Temperature:            | 22.9 °C   |
| Humidity:               | 52.0 % RH |
| Atmospheric Pressure:   | 101.3kPa  |

### 14.2 Test Procedure

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

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

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



### 14.3 Test Result

LTE Band 2

| Test Frequency:1880.0MHz QPSK 1.4MHz |                    |                      |                       |             |
|--------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                     | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                   | 3.85               | 9                    | 0.0048                | 2.5         |
| 40                                   |                    | -3                   | -0.0016               | 2.5         |
| 30                                   |                    | 9                    | 0.0048                | 2.5         |
| 20                                   |                    | 4                    | 0.0021                | 2.5         |
| 10                                   |                    | 3                    | 0.0016                | 2.5         |
| 0                                    |                    | 0                    | 0.0000                | 2.5         |
| -10                                  |                    | -1                   | -0.0005               | 2.5         |
| -20                                  |                    | 6                    | 0.0032                | 2.5         |
| -30                                  |                    | 3                    | 0.0016                | 2.5         |
| 20                                   | 3.4                | 6                    | 0.0032                | 2.5         |
| 20                                   | 4.3                | 4                    | 0.0021                | 2.5         |

| T Test Frequency:1880.0MHz 16QAM 1.4MHz |                    |                      |                       |             |
|-----------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                        | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                      | 3.85               | -1                   | -0.0005               | 2.5         |
| 40                                      |                    | -7                   | -0.0037               | 2.5         |
| 30                                      |                    | 7                    | 0.0037                | 2.5         |
| 20                                      |                    | 2                    | 0.0011                | 2.5         |
| 10                                      |                    | -2                   | -0.0011               | 2.5         |
| 0                                       |                    | -4                   | -0.0021               | 2.5         |
| -10                                     |                    | -4                   | -0.0021               | 2.5         |
| -20                                     |                    | 8                    | 0.0043                | 2.5         |
| -30                                     |                    | -3                   | -0.0016               | 2.5         |
| 20                                      | 3.4                | 9                    | 0.0048                | 2.5         |
| 20                                      | 4.3                | 1                    | 0.0005                | 2.5         |

## LTE Band 2

| Test Frequency:1880.0MHz QPSK 3MHz |                    |                      |                       |             |
|------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                   | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                 | 3.85               | -2                   | -0.0011               | 2.5         |
| 40                                 |                    | 4                    | 0.0021                | 2.5         |
| 30                                 |                    | -1                   | -0.0005               | 2.5         |
| 20                                 |                    | 0                    | 0.0000                | 2.5         |
| 10                                 |                    | 0                    | 0.0000                | 2.5         |
| 0                                  |                    | 8                    | 0.0043                | 2.5         |
| -10                                |                    | 2                    | 0.0011                | 2.5         |
| -20                                |                    | 7                    | 0.0037                | 2.5         |
| -30                                |                    | 7                    | 0.0037                | 2.5         |
| 20                                 | 3.4                | -2                   | -0.0011               | 2.5         |
| 20                                 | 4.3                | 4                    | 0.0021                | 2.5         |

| Test Frequency:1880.0MHz 16QAM 3MHz |                    |                      |                       |             |
|-------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                    | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                  | 3.85               | 10                   | 0.0053                | 2.5         |
| 40                                  |                    | -2                   | -0.0011               | 2.5         |
| 30                                  |                    | 0                    | 0.0000                | 2.5         |
| 20                                  |                    | 5                    | 0.0027                | 2.5         |
| 10                                  |                    | 2                    | 0.0011                | 2.5         |
| 0                                   |                    | -2                   | -0.0011               | 2.5         |
| -10                                 |                    | 10                   | 0.0053                | 2.5         |
| -20                                 |                    | -1                   | -0.0005               | 2.5         |
| -30                                 |                    | 4                    | 0.0021                | 2.5         |
| 20                                  | 3.4                | 0                    | 0.0000                | 2.5         |
| 20                                  | 4.3                | 5                    | 0.0027                | 2.5         |

## LTE Band 2

| Test Frequency:1880.0MHz QPSK 5MHz |                    |                      |                       |             |
|------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                   | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                 | 3.85               | 9                    | 0.0048                | 2.5         |
| 40                                 |                    | 8                    | 0.0043                | 2.5         |
| 30                                 |                    | 8                    | 0.0043                | 2.5         |
| 20                                 |                    | 2                    | 0.0011                | 2.5         |
| 10                                 |                    | 2                    | 0.0011                | 2.5         |
| 0                                  |                    | 9                    | 0.0048                | 2.5         |
| -10                                |                    | 1                    | 0.0005                | 2.5         |
| -20                                |                    | -6                   | -0.0032               | 2.5         |
| -30                                |                    | -7                   | -0.0037               | 2.5         |
| 20                                 | 3.4                | 10                   | 0.0053                | 2.5         |
| 20                                 | 4.3                | 5                    | 0.0027                | 2.5         |

| Test Frequency:1880.0MHz 16QAM 5MHz |                    |                      |                       |             |
|-------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                    | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                  | 3.85               | 0                    | 0.0000                | 2.5         |
| 40                                  |                    | 4                    | 0.0021                | 2.5         |
| 30                                  |                    | 17                   | 0.0090                | 2.5         |
| 20                                  |                    | 9                    | 0.0048                | 2.5         |
| 10                                  |                    | 15                   | 0.0080                | 2.5         |
| 0                                   |                    | 17                   | 0.0090                | 2.5         |
| -10                                 |                    | 13                   | 0.0069                | 2.5         |
| -20                                 |                    | 5                    | 0.0027                | 2.5         |
| -30                                 |                    | 8                    | 0.0043                | 2.5         |
| 20                                  | 3.4                | 6                    | 0.0032                | 2.5         |
| 20                                  | 4.3                | 6                    | 0.0032                | 2.5         |

## LTE Band 2

| Test Frequency:1880.0MHz QPSK 10MHz |                    |                      |                       |             |
|-------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                    | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                  | 3.85               | 13                   | 0.0069                | 2.5         |
| 40                                  |                    | 12                   | 0.0064                | 2.5         |
| 30                                  |                    | 3                    | 0.0016                | 2.5         |
| 20                                  |                    | 6                    | 0.0032                | 2.5         |
| 10                                  |                    | -1                   | -0.0005               | 2.5         |
| 0                                   |                    | 8                    | 0.0043                | 2.5         |
| -10                                 |                    | 13                   | 0.0069                | 2.5         |
| -20                                 |                    | 9                    | 0.0048                | 2.5         |
| -30                                 |                    | 6                    | 0.0032                | 2.5         |
| 20                                  | 3.4                | 7                    | 0.0037                | 2.5         |
| 20                                  | 4.3                | 0                    | 0.0000                | 2.5         |

| Test Frequency:1880.0MHz 16QAM 10MHz |                    |                      |                       |             |
|--------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                     | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                   | 3.85               | -1                   | -0.0005               | 2.5         |
| 40                                   |                    | 4                    | 0.0021                | 2.5         |
| 30                                   |                    | 5                    | 0.0027                | 2.5         |
| 20                                   |                    | 4                    | 0.0021                | 2.5         |
| 10                                   |                    | 11                   | 0.0059                | 2.5         |
| 0                                    |                    | -3                   | -0.0016               | 2.5         |
| -10                                  |                    | 1                    | 0.0005                | 2.5         |
| -20                                  |                    | 2                    | 0.0011                | 2.5         |
| -30                                  |                    | -4                   | -0.0021               | 2.5         |
| 20                                   | 3.4                | 9                    | 0.0048                | 2.5         |
| 20                                   | 4.3                | 1                    | 0.0005                | 2.5         |

## LTE Band 2

| Test Frequency:1880.0MHz QPSK 15MHz |                    |                      |                       |             |
|-------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                    | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                  | 3.85               | 2                    | 0.0011                | 2.5         |
| 40                                  |                    | 3                    | 0.0016                | 2.5         |
| 30                                  |                    | 6                    | 0.0032                | 2.5         |
| 20                                  |                    | 1                    | 0.0005                | 2.5         |
| 10                                  |                    | -7                   | -0.0037               | 2.5         |
| 0                                   |                    | 1                    | 0.0005                | 2.5         |
| -10                                 |                    | -7                   | -0.0037               | 2.5         |
| -20                                 |                    | -4                   | -0.0021               | 2.5         |
| -30                                 |                    | 6                    | 0.0032                | 2.5         |
| 20                                  | 3.4                | 9                    | 0.0048                | 2.5         |
| 20                                  | 4.3                | 1                    | 0.0005                | 2.5         |

| Test Frequency:1880.0MHz 16QAM 15MHz |                    |                      |                       |             |
|--------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                     | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                   | 3.85               | -9                   | -0.0048               | 2.5         |
| 40                                   |                    | -6                   | -0.0032               | 2.5         |
| 30                                   |                    | -7                   | -0.0037               | 2.5         |
| 20                                   |                    | -3                   | -0.0016               | 2.5         |
| 10                                   |                    | 2                    | 0.0011                | 2.5         |
| 0                                    |                    | 2                    | 0.0011                | 2.5         |
| -10                                  |                    | -8                   | -0.0043               | 2.5         |
| -20                                  |                    | -7                   | -0.0037               | 2.5         |
| -30                                  |                    | 0                    | 0.0000                | 2.5         |
| 20                                   | 3.4                | -11                  | -0.0059               | 2.5         |
| 20                                   | 4.3                | -8                   | -0.0043               | 2.5         |

## LTE Band 2

| Test Frequency:1880.0MHz QPSK 20MHz |                    |                      |                       |             |
|-------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                    | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                  | 3.85               | -3                   | -0.0016               | 2.5         |
| 40                                  |                    | -4                   | -0.0021               | 2.5         |
| 30                                  |                    | -11                  | -0.0059               | 2.5         |
| 20                                  |                    | -5                   | -0.0027               | 2.5         |
| 10                                  |                    | -10                  | -0.0053               | 2.5         |
| 0                                   |                    | -9                   | -0.0048               | 2.5         |
| -10                                 |                    | -8                   | -0.0043               | 2.5         |
| -20                                 |                    | -11                  | -0.0059               | 2.5         |
| -30                                 |                    | 0                    | 0.0000                | 2.5         |
| 20                                  | 3.4                | -11                  | -0.0059               | 2.5         |
| 20                                  | 4.3                | 2                    | 0.0011                | 2.5         |

| Test Frequency:1880.0MHz 16QAM 20MHz |                    |                      |                       |             |
|--------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                     | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                   | 3.85               | -1                   | -0.0005               | 2.5         |
| 40                                   |                    | -5                   | -0.0027               | 2.5         |
| 30                                   |                    | -3                   | -0.0016               | 2.5         |
| 20                                   |                    | -2                   | -0.0011               | 2.5         |
| 10                                   |                    | 2                    | 0.0011                | 2.5         |
| 0                                    |                    | -8                   | -0.0043               | 2.5         |
| -10                                  |                    | -7                   | -0.0037               | 2.5         |
| -20                                  |                    | -3                   | -0.0016               | 2.5         |
| -30                                  |                    | 2                    | 0.0011                | 2.5         |
| 20                                   | 3.4                | -1                   | -0.0005               | 2.5         |
| 20                                   | 4.3                | -5                   | -0.0027               | 2.5         |

## LTE Band 4

| Test Frequency:1732.5MHz QPSK 1.4MHz |                    |                      |                       |             |
|--------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                     | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                   | 3.85               | 3                    | 0.0017                | 2.5         |
| 40                                   |                    | 2                    | 0.0012                | 2.5         |
| 30                                   |                    | 12                   | 0.0069                | 2.5         |
| 20                                   |                    | 4                    | 0.0023                | 2.5         |
| 10                                   |                    | 12                   | 0.0069                | 2.5         |
| 0                                    |                    | 3                    | 0.0017                | 2.5         |
| -10                                  |                    | 6                    | 0.0035                | 2.5         |
| -20                                  |                    | 7                    | 0.0040                | 2.5         |
| -30                                  |                    | 12                   | 0.0069                | 2.5         |
| 20                                   | 3.4                | -2                   | -0.0012               | 2.5         |
| 20                                   | 4.3                | 4                    | 0.0023                | 2.5         |

| Test Frequency:1732.5MHz 16QAM 1.4MHz |                    |                      |                       |             |
|---------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                      | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                    | 3.85               | 9                    | 0.0052                | 2.5         |
| 40                                    |                    | 14                   | 0.0081                | 2.5         |
| 30                                    |                    | 1                    | 0.0006                | 2.5         |
| 20                                    |                    | 8                    | 0.0046                | 2.5         |
| 10                                    |                    | 6                    | 0.0035                | 2.5         |
| 0                                     |                    | 14                   | 0.0081                | 2.5         |
| -10                                   |                    | 13                   | 0.0075                | 2.5         |
| -20                                   |                    | 16                   | 0.0092                | 2.5         |
| -30                                   |                    | 0                    | 0.0000                | 2.5         |
| 20                                    | 3.4                | 6                    | 0.0035                | 2.5         |
| 20                                    | 4.3                | 14                   | 0.0081                | 2.5         |

## LTE Band 4

| Test Frequency:1732.5MHz QPSK 3MHz |                    |                      |                       |             |
|------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                   | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                 | 3.85               | -1                   | -0.0006               | 2.5         |
| 40                                 |                    | 8                    | 0.0046                | 2.5         |
| 30                                 |                    | 0                    | 0.0000                | 2.5         |
| 20                                 |                    | 1                    | 0.0006                | 2.5         |
| 10                                 |                    | 9                    | 0.0052                | 2.5         |
| 0                                  |                    | 5                    | 0.0029                | 2.5         |
| -10                                |                    | -6                   | -0.0035               | 2.5         |
| -20                                |                    | 2                    | 0.0012                | 2.5         |
| -30                                |                    | -2                   | -0.0012               | 2.5         |
| 20                                 | 3.4                | 3                    | 0.0017                | 2.5         |
| 20                                 | 4.3                | 1                    | 0.0006                | 2.5         |

| Test Frequency:1732.5MHz 16QAM 3MHz |                    |                      |                       |             |
|-------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                    | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                  | 3.85               | 8                    | 0.0046                | 2.5         |
| 40                                  |                    | 14                   | 0.0081                | 2.5         |
| 30                                  |                    | 10                   | 0.0058                | 2.5         |
| 20                                  |                    | 5                    | 0.0029                | 2.5         |
| 10                                  |                    | 5                    | 0.0029                | 2.5         |
| 0                                   |                    | 12                   | 0.0069                | 2.5         |
| -10                                 |                    | 7                    | 0.0040                | 2.5         |
| -20                                 |                    | 9                    | 0.0052                | 2.5         |
| -30                                 |                    | 8                    | 0.0046                | 2.5         |
| 20                                  | 3.4                | -2                   | -0.0012               | 2.5         |
| 20                                  | 4.3                | 7                    | 0.0040                | 2.5         |

## LTE Band 4

| Test Frequency:1732.5MHz QPSK 5MHz |                    |                      |                       |             |
|------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                   | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                 | 3.85               | 6                    | 0.0035                | 2.5         |
| 40                                 |                    | 13                   | 0.0075                | 2.5         |
| 30                                 |                    | 3                    | 0.0017                | 2.5         |
| 20                                 |                    | 9                    | 0.0052                | 2.5         |
| 10                                 |                    | 8                    | 0.0046                | 2.5         |
| 0                                  |                    | 3                    | 0.0017                | 2.5         |
| -10                                |                    | 12                   | 0.0069                | 2.5         |
| -20                                |                    | 6                    | 0.0035                | 2.5         |
| -30                                |                    | 5                    | 0.0029                | 2.5         |
| 20                                 | 3.4                | 3                    | 0.0017                | 2.5         |
| 20                                 | 4.3                | 17                   | 0.0098                | 2.5         |

| Test Frequency:1732.5MHz 16QAM 5MHz |                    |                      |                       |             |
|-------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                    | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                  | 3.85               | 5                    | 0.0029                | 2.5         |
| 40                                  |                    | 12                   | 0.0069                | 2.5         |
| 30                                  |                    | 5                    | 0.0029                | 2.5         |
| 20                                  |                    | 11                   | 0.0063                | 2.5         |
| 10                                  |                    | 13                   | 0.0075                | 2.5         |
| 0                                   |                    | 19                   | 0.0110                | 2.5         |
| -10                                 |                    | 18                   | 0.0104                | 2.5         |
| -20                                 |                    | 19                   | 0.0110                | 2.5         |
| -30                                 |                    | 4                    | 0.0023                | 2.5         |
| 20                                  | 3.4                | 17                   | 0.0098                | 2.5         |
| 20                                  | 4.3                | 12                   | 0.0069                | 2.5         |

## LTE Band 4

| Test Frequency:1732.5MHz QPSK 10MHz |                    |                      |                       |             |
|-------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                    | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                  | 3.85               | 5                    | 0.0029                | 2.5         |
| 40                                  |                    | 5                    | 0.0029                | 2.5         |
| 30                                  |                    | -10                  | -0.0058               | 2.5         |
| 20                                  |                    | -1                   | -0.0006               | 2.5         |
| 10                                  |                    | 6                    | 0.0035                | 2.5         |
| 0                                   |                    | -5                   | -0.0029               | 2.5         |
| -10                                 |                    | -2                   | -0.0012               | 2.5         |
| -20                                 |                    | -1                   | -0.0006               | 2.5         |
| -30                                 |                    | -8                   | -0.0046               | 2.5         |
| 20                                  | 3.4                | -4                   | -0.0023               | 2.5         |
| 20                                  | 4.3                | 4                    | 0.0023                | 2.5         |

| Test Frequency:1732.5MHz 16QAM 10MHz |                    |                      |                       |             |
|--------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                     | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                   | 3.85               | -6                   | -0.0035               | 2.5         |
| 40                                   |                    | -11                  | -0.0063               | 2.5         |
| 30                                   |                    | -8                   | -0.0046               | 2.5         |
| 20                                   |                    | -5                   | -0.0029               | 2.5         |
| 10                                   |                    | 1                    | 0.0006                | 2.5         |
| 0                                    |                    | 3                    | 0.0017                | 2.5         |
| -10                                  |                    | 3                    | 0.0017                | 2.5         |
| -20                                  |                    | -2                   | -0.0012               | 2.5         |
| -30                                  |                    | 1                    | 0.0006                | 2.5         |
| 20                                   | 3.4                | 3                    | 0.0017                | 2.5         |
| 20                                   | 4.3                | -12                  | -0.0069               | 2.5         |

## LTE Band 4

| Test Frequency:1732.5MHz QPSK 15MHz |                    |                      |                       |             |
|-------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                    | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                  | 3.85               | 4                    | 0.0023                | 2.5         |
| 40                                  |                    | 5                    | 0.0029                | 2.5         |
| 30                                  |                    | -5                   | -0.0029               | 2.5         |
| 20                                  |                    | 3                    | 0.0017                | 2.5         |
| 10                                  |                    | -1                   | -0.0006               | 2.5         |
| 0                                   |                    | -4                   | -0.0023               | 2.5         |
| -10                                 |                    | -2                   | -0.0012               | 2.5         |
| -20                                 |                    | 4                    | 0.0023                | 2.5         |
| -30                                 |                    | -2                   | -0.0012               | 2.5         |
| 20                                  | 3.4                | 7                    | 0.0040                | 2.5         |
| 20                                  | 4.3                | 2                    | 0.0012                | 2.5         |

| Test Frequency:1732.5MHz 16QAM 15MHz |                    |                      |                       |             |
|--------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                     | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                   | 3.85               | -3                   | -0.0017               | 2.5         |
| 40                                   |                    | -9                   | -0.0052               | 2.5         |
| 30                                   |                    | 0                    | 0.0000                | 2.5         |
| 20                                   |                    | -7                   | -0.0040               | 2.5         |
| 10                                   |                    | -13                  | -0.0075               | 2.5         |
| 0                                    |                    | -15                  | -0.0087               | 2.5         |
| -10                                  |                    | -2                   | -0.0012               | 2.5         |
| -20                                  |                    | -10                  | -0.0058               | 2.5         |
| -30                                  |                    | -12                  | -0.0069               | 2.5         |
| 20                                   | 3.4                | -6                   | -0.0035               | 2.5         |
| 20                                   | 4.3                | -3                   | -0.0017               | 2.5         |

## LTE Band 4

| Test Frequency:1732.5MHz QPSK 20MHz |                    |                      |                       |             |
|-------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                    | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                  | 3.85               | -7                   | -0.0040               | 2.5         |
| 40                                  |                    | -7                   | -0.0040               | 2.5         |
| 30                                  |                    | -6                   | -0.0035               | 2.5         |
| 20                                  |                    | -2                   | -0.0012               | 2.5         |
| 10                                  |                    | 3                    | 0.0017                | 2.5         |
| 0                                   |                    | 7                    | 0.0040                | 2.5         |
| -10                                 |                    | -2                   | -0.0012               | 2.5         |
| -20                                 |                    | -3                   | -0.0017               | 2.5         |
| -30                                 |                    | 5                    | 0.0029                | 2.5         |
| 20                                  | 3.4                | -7                   | -0.0040               | 2.5         |
| 20                                  | 4.3                | 4                    | 0.0023                | 2.5         |

| Test Frequency:1732.5MHz 16QAM 20MHz |                    |                      |                       |             |
|--------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                     | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                   | 3.85               | -11                  | -0.0063               | 2.5         |
| 40                                   |                    | -11                  | -0.0063               | 2.5         |
| 30                                   |                    | -15                  | -0.0087               | 2.5         |
| 20                                   |                    | -8                   | -0.0046               | 2.5         |
| 10                                   |                    | -11                  | -0.0063               | 2.5         |
| 0                                    |                    | -4                   | -0.0023               | 2.5         |
| -10                                  |                    | -12                  | -0.0069               | 2.5         |
| -20                                  |                    | 0                    | 0.0000                | 2.5         |
| -30                                  |                    | -2                   | -0.0012               | 2.5         |
| 20                                   | 3.4                | -12                  | -0.0069               | 2.5         |
| 20                                   | 4.3                | 0                    | 0.0000                | 2.5         |

## LTE Band 7

| Test Frequency:2535MHz QPSK 5MHz |                    |                      |                       |             |
|----------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                 | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                               | 3.85               | -3                   | -0.0012               | 2.5         |
| 40                               |                    | -3                   | -0.0012               | 2.5         |
| 30                               |                    | -3                   | -0.0012               | 2.5         |
| 20                               |                    | 3                    | 0.0012                | 2.5         |
| 10                               |                    | 3                    | 0.0012                | 2.5         |
| 0                                |                    | 0                    | 0.0000                | 2.5         |
| -10                              |                    | 2                    | 0.0008                | 2.5         |
| -20                              |                    | 6                    | 0.0024                | 2.5         |
| -30                              |                    | -4                   | -0.0016               | 2.5         |
| 20                               | 3.4                | 1                    | 0.0004                | 2.5         |
| 20                               | 4.3                | -6                   | -0.0024               | 2.5         |

| Test Frequency:2535MHz 16QAM 5MHz |                    |                      |                       |             |
|-----------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                  | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                | 3.85               | 11                   | 0.0043                | 2.5         |
| 40                                |                    | 10                   | 0.0039                | 2.5         |
| 30                                |                    | 10                   | 0.0039                | 2.5         |
| 20                                |                    | 3                    | 0.0012                | 2.5         |
| 10                                |                    | 0                    | 0.0000                | 2.5         |
| 0                                 |                    | 7                    | 0.0028                | 2.5         |
| -10                               |                    | 0                    | 0.0000                | 2.5         |
| -20                               |                    | 2                    | 0.0008                | 2.5         |
| -30                               |                    | 6                    | 0.0024                | 2.5         |
| 20                                | 3.4                | 2                    | 0.0008                | 2.5         |
| 20                                | 4.3                | 5                    | 0.0020                | 2.5         |

## LTE Band 7

| Test Frequency:2535MHz QPSK 10MHz |                    |                      |                       |             |
|-----------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                  | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                | 3.85               | 0                    | 0.0000                | 2.5         |
| 40                                |                    | 4                    | 0.0016                | 2.5         |
| 30                                |                    | 4                    | 0.0016                | 2.5         |
| 20                                |                    | 7                    | 0.0028                | 2.5         |
| 10                                |                    | 11                   | 0.0043                | 2.5         |
| 0                                 |                    | -2                   | -0.0008               | 2.5         |
| -10                               |                    | 10                   | 0.0039                | 2.5         |
| -20                               |                    | 2                    | 0.0008                | 2.5         |
| -30                               |                    | 14                   | 0.0055                | 2.5         |
| 20                                | 3.4                | 0                    | 0.0000                | 2.5         |
| 20                                | 4.3                | 16                   | 0.0063                | 2.5         |

| Test Frequency:2535MHz 16QAM 10MHz |                    |                      |                       |             |
|------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                   | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                 | 3.85               | 3                    | 0.0012                | 2.5         |
| 40                                 |                    | 1                    | 0.0004                | 2.5         |
| 30                                 |                    | -5                   | -0.0020               | 2.5         |
| 20                                 |                    | 2                    | 0.0008                | 2.5         |
| 10                                 |                    | 3                    | 0.0012                | 2.5         |
| 0                                  |                    | 2                    | 0.0008                | 2.5         |
| -10                                |                    | -6                   | -0.0024               | 2.5         |
| -20                                |                    | 5                    | 0.0020                | 2.5         |
| -30                                |                    | 7                    | 0.0028                | 2.5         |
| 20                                 | 3.4                | -6                   | -0.0024               | 2.5         |
| 20                                 | 4.3                | -1                   | -0.0004               | 2.5         |

## LTE Band 7

| Test Frequency:2535MHz QPSK 15MHz |                    |                      |                       |             |
|-----------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                  | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                | 3.85               | 1                    | 0.0004                | 2.5         |
| 40                                |                    | -1                   | -0.0004               | 2.5         |
| 30                                |                    | 4                    | 0.0016                | 2.5         |
| 20                                |                    | -1                   | -0.0004               | 2.5         |
| 10                                |                    | -2                   | -0.0008               | 2.5         |
| 0                                 |                    | 3                    | 0.0012                | 2.5         |
| -10                               |                    | -8                   | -0.0032               | 2.5         |
| -20                               |                    | 3                    | 0.0012                | 2.5         |
| -30                               |                    | -4                   | -0.0016               | 2.5         |
| 20                                | 3.4                | 7                    | 0.0028                | 2.5         |
| 20                                | 4.3                | 1                    | 0.0004                | 2.5         |

| Test Frequency:2535MHz 16QAM 15MHz |                    |                      |                       |             |
|------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                   | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                 | 3.85               | 1                    | 0.0004                | 2.5         |
| 40                                 |                    | 2                    | 0.0008                | 2.5         |
| 30                                 |                    | 1                    | 0.0004                | 2.5         |
| 20                                 |                    | 5                    | 0.0020                | 2.5         |
| 10                                 |                    | 5                    | 0.0020                | 2.5         |
| 0                                  |                    | 12                   | 0.0047                | 2.5         |
| -10                                |                    | 5                    | 0.0020                | 2.5         |
| -20                                |                    | 10                   | 0.0039                | 2.5         |
| -30                                |                    | -3                   | -0.0012               | 2.5         |
| 20                                 | 3.4                | 6                    | 0.0024                | 2.5         |
| 20                                 | 4.3                | 8                    | 0.0032                | 2.5         |

## LTE Band 7

| Test Frequency:2535MHz QPSK 20MHz |                    |                      |                       |             |
|-----------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                  | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                | 3.85               | 7                    | 0.0028                | 2.5         |
| 40                                |                    | 1                    | 0.0004                | 2.5         |
| 30                                |                    | 15                   | 0.0059                | 2.5         |
| 20                                |                    | 8                    | 0.0032                | 2.5         |
| 10                                |                    | 13                   | 0.0051                | 2.5         |
| 0                                 |                    | -1                   | -0.0004               | 2.5         |
| -10                               |                    | 1                    | 0.0004                | 2.5         |
| -20                               |                    | 6                    | 0.0024                | 2.5         |
| -30                               |                    | 10                   | 0.0039                | 2.5         |
| 20                                | 3.4                | 4                    | 0.0016                | 2.5         |
| 20                                | 4.3                | 16                   | 0.0063                | 2.5         |

| Test Frequency:2535MHz 16QAM 20MHz |                    |                      |                       |             |
|------------------------------------|--------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                   | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50                                 | 3.85               | 7                    | 0.0028                | 2.5         |
| 40                                 |                    | 4                    | 0.0016                | 2.5         |
| 30                                 |                    | -8                   | -0.0032               | 2.5         |
| 20                                 |                    | 0                    | 0.0000                | 2.5         |
| 10                                 |                    | -5                   | -0.0020               | 2.5         |
| 0                                  |                    | 1                    | 0.0004                | 2.5         |
| -10                                |                    | -2                   | -0.0008               | 2.5         |
| -20                                |                    | -7                   | -0.0028               | 2.5         |
| -30                                |                    | 8                    | 0.0032                | 2.5         |
| 20                                 | 3.4                | 2                    | 0.0008                | 2.5         |
| 20                                 | 4.3                | -2                   | -0.0008               | 2.5         |

## **15 RF Exposure**

Remark: refer to SAR test report: WTS17S1093493-5E.

## **16 Photographs of test setup and EUT.**

Note: Please refer to appendix: WTS17S1093493E\_Photo.

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