

# FCC Test Report

**Report No.:** 2405T48460EC

**Applicant:** Shenzhen Omni Intelligent Technology Co., Ltd.

**Address:** 11th Floor, Building 31, Phase III, Lianchuang Technology Park,  
Nanwan street, Longgang District, Shenzhen, China

**Product Name:** Sharing Scooter IOT

**Product Model:** M151-IOT

**Multiple Models:** N/A

**Trade Mark:** N/A

**FCC ID:** 2AI2O-M151IOT

**Standards:** FCC CFR Title 47 Part 2, 22H, 24E, 27

**Test Date:** 2024-06-10 to 2024-06-25

**Test Result:** Complied

**Issue Date:** 2024-06-26

**Reviewed by:**

Frank Yin

**Approved by:**

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## Revision History

| Version No. | Issued Date | Description |
|-------------|-------------|-------------|
| 00          | 2024-06-26  | Original    |

# Contents

|          |                                                      |           |
|----------|------------------------------------------------------|-----------|
| <b>1</b> | <b>General Information .....</b>                     | <b>4</b>  |
| 1.1      | Client Information.....                              | 4         |
| 1.2      | Product Description of EUT .....                     | 4         |
| 1.3      | Related Submittal(s)/Grant(s).....                   | 4         |
| 1.4      | Measurement Uncertainty .....                        | 5         |
| 1.5      | Laboratory Location .....                            | 5         |
| 1.6      | Test Methodology.....                                | 5         |
| <b>2</b> | <b>Description of Measurement.....</b>               | <b>6</b>  |
| 2.1      | Test Frequency of Low/Middle/High Channels .....     | 6         |
| 2.2      | Test Configuration for LTE bands .....               | 6         |
| 2.3      | Test Auxiliary Equipment .....                       | 7         |
| 2.4      | Interconnecting Cables.....                          | 7         |
| 2.5      | Block Diagram of Connection between EUT and AE ..... | 8         |
| 2.6      | Test Setup.....                                      | 8         |
| 2.7      | Test Procedure.....                                  | 10        |
| 2.8      | Measurement Method.....                              | 11        |
| 2.9      | Measurement Equipment .....                          | 12        |
| <b>3</b> | <b>Test Results .....</b>                            | <b>13</b> |
| 3.1      | Test Summary.....                                    | 13        |
| 3.2      | Limit .....                                          | 14        |
| 3.3      | RF Conducted Test Data .....                         | 19        |
| 3.3.1    | RF Output Power&ERP/EIRP.....                        | 19        |
| 3.3.2    | Peak-to-average ratio (PAR) .....                    | 28        |
| 3.3.3    | 26dB and 99% Bandwidth .....                         | 30        |
| 3.3.4    | Conducted Spurious Emissions.....                    | 32        |
| 3.3.5    | Out of band emission, Band Edge.....                 | 32        |
| 3.3.6    | FREQUENCY STABILITY .....                            | 33        |
| 3.4      | Radiated Spurious emission Test Data.....            | 38        |
| <b>4</b> | <b>Test Setup Photo.....</b>                         | <b>40</b> |
| <b>5</b> | <b>E.U.T Photo .....</b>                             | <b>41</b> |

# 1 General Information

## 1.1 Client Information

|               |                                                                                                                   |
|---------------|-------------------------------------------------------------------------------------------------------------------|
| Applicant:    | Shenzhen Omni Intelligent Technology Co., Ltd.                                                                    |
| Address:      | 11th Floor, Building 31, Phase III, Lianchuang Technology Park, Nanwan street, Longgang District, Shenzhen, China |
| Manufacturer: | Shenzhen Omni Intelligent Technology Co., Ltd.                                                                    |
| Address:      | 11th Floor, Building 31, Phase III, Lianchuang Technology Park, Nanwan street, Longgang District, Shenzhen, China |

## 1.2 Product Description of EUT

The EUT is an Sharing Scooter IOT that contains BLE and LTE radios, this report covers the full testing of the LTE radio.

|                         |                                                                          |                    |                    |                            |                                 |
|-------------------------|--------------------------------------------------------------------------|--------------------|--------------------|----------------------------|---------------------------------|
| Sample Serial number    | 2MC4-2 for RE test, 2MC4-3 for RF test conducted test (assigned by WATC) |                    |                    |                            |                                 |
| Sample Received Date    | 2024-06-03                                                               |                    |                    |                            |                                 |
| Sample Status           | Good Condition                                                           |                    |                    |                            |                                 |
| Frequency Range         | Band                                                                     | TX Frequency (MHz) | RX Frequency (MHz) | Max. Conducted Power (dBm) | Antenna Gain <sup>#</sup> (dBi) |
| Maximum Conducted Power | LTE B2                                                                   | 1850-1910          | 1930-1990          | 20.98                      | -1.15                           |
| Antenna Gain            | LTE B4                                                                   | 1710-1755          | 2110-2155          | 20.99                      | -0.73                           |
|                         | LTE B5                                                                   | 824-849            | 869-894            | 20.94                      | -0.77                           |
|                         | LTE B12                                                                  | 699-716            | 729-746            | 21.00                      | -0.83                           |
|                         | LTE B13                                                                  | 777-787            | 746-756            | 21.05                      | -0.89                           |
| Modulation Technology   | QPSK, 16QAM                                                              |                    |                    |                            |                                 |
| Power Supply            | Power by DC 3.7V built-in battery or DC 24V-72V                          |                    |                    |                            |                                 |
| UE category             | LTE Cat-M1                                                               |                    |                    |                            |                                 |
| Adapter Information     | N/A                                                                      |                    |                    |                            |                                 |
| Modification            | Sample No Modification by the test lab                                   |                    |                    |                            |                                 |

## 1.3 Related Submittal(s)/Grant(s)

|                                                                     |
|---------------------------------------------------------------------|
| FCC Part 15, Subpart C, Equipment Class: DTS, FCC ID: 2AI2O-M151IOT |
|---------------------------------------------------------------------|

## 1.4 Measurement Uncertainty

| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |             | Expanded Uncertainty<br>(Confidence of 95%(U = 2Uc(y))) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------|
| Emissions, Radiated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Below 30MHz | ±2.78dB                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Below 1GHz  | ±4.84dB                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Above 1GHz  | ±5.44dB                                                 |
| Emissions, Conducted                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             | 1.75dB                                                  |
| Conducted Power                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             | 0.74dB                                                  |
| Frequency Error                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             | 150Hz                                                   |
| Bandwidth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |             | 0.34%                                                   |
| <p><b>Note 1:</b> The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.</p> <p><b>Note 2:</b> The Decision Rule is based on simple acceptance with ISO Guide 98-4:2012 Clause 8.2 (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)</p> |             |                                                         |

## 1.5 Laboratory Location

World Alliance Testing & Certification (Shenzhen) Co., Ltd

No. 1002, East Block, Laobing Building, Xingye Road 3012, Xixiang street, Bao'an District, Shenzhen, Guangdong, People's Republic of China

Tel: +86-755-29691511, Email: [ga@watc.com.cn](mailto:ga@watc.com.cn)

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 463912, the FCC Designation No. : CN5040.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0160.

## 1.6 Test Methodology

FCC CFR Title 47 Part 2, 22H, 24E, 27

ANSI C63.26-2015

FCC KDB 971168 D01 Power Meas License Digital Systems v03r01

FCC KDB 971168 D02 Misc Rev Approv License Devices v02r02

FCC KDB 412172 D01 Determining ERP and EIRP v01r01

## 2 Description of Measurement

### 2.1 Test Frequency of Low/Middle/High Channels

| Band    | Bandwidth (MHz) | Low Channel (MHz) | Middle Channel (MHz) | High Channel (MHz) |
|---------|-----------------|-------------------|----------------------|--------------------|
| LTE B2  | 1.4             | 1850.7            | 1880                 | 1909.3             |
|         | 3               | 1851.5            | 1880                 | 1908.5             |
|         | 5               | 1852.5            | 1880                 | 1907.5             |
|         | 10              | 1855              | 1880                 | 1905               |
|         | 15              | 1857.5            | 1880                 | 1902.5             |
|         | 20              | 1860              | 1880                 | 1900               |
| LTE B4  | 1.4             | 1710.7            | 1732.5               | 1754.3             |
|         | 3               | 1711.5            | 1732.5               | 1753.5             |
|         | 5               | 1712.5            | 1732.5               | 1752.5             |
|         | 10              | 1715              | 1732.5               | 1750               |
|         | 15              | 1717.5            | 1732.5               | 1747.5             |
|         | 20              | 1720              | 1732.5               | 1745               |
| LTE B5  | 1.4             | 824.7             | 836.5                | 848.3              |
|         | 3               | 825.5             | 836.5                | 847.5              |
|         | 5               | 826.5             | 836.5                | 846.5              |
|         | 10              | 829               | 836.5                | 844                |
| LTE B12 | 1.4             | 699.7             | 707.5                | 715.3              |
|         | 3               | 700.5             | 707.5                | 714.5              |
|         | 5               | 701.5             | 707.5                | 713.5              |
|         | 10              | 704               | 707.5                | 711                |
| LTE B13 | 5               | 779.5             | 782                  | 784.5              |
|         | 10              | /                 | 782                  | /                  |

### 2.2 Test Configuration for LTE bands

| Test Items               | Band | Bandwidth (MHz) |   |   |    |    |    | Modulation |       | RB# |      |      | Test Channel |   |   |
|--------------------------|------|-----------------|---|---|----|----|----|------------|-------|-----|------|------|--------------|---|---|
|                          |      | 1.4             | 3 | 5 | 10 | 15 | 20 | QPSK       | 16QAM | 1   | Half | Full | L            | M | H |
| RF Output Power ERP/EIRP | 2    | √               | √ | √ | √  | √  | √  | √          | √     | √   | √    | √    | √            | √ | √ |
|                          | 4    | √               | √ | √ | √  | √  | √  | √          | √     | √   | √    | √    | √            | √ | √ |
|                          | 5    | √               | √ | √ | √  | -  | -  | √          | √     | √   | √    | √    | √            | √ | √ |
|                          | 12   | √               | √ | √ | √  | -  | -  | √          | √     | √   | √    | √    | √            | √ | √ |
|                          | 13   | -               | - | √ | √  | -  | -  | √          | √     | √   | √    | √    | √            | √ | √ |
| Peak-to-Average Ratio    | 2    |                 |   |   | √  |    |    | √          | √     | √   |      | √    | √            | √ | √ |
|                          | 4    |                 |   |   | √  |    |    | √          | √     | √   |      | √    | √            | √ | √ |

|                             |    |   |   |   |   |   |   |   |   |   |  |   |   |   |   |
|-----------------------------|----|---|---|---|---|---|---|---|---|---|--|---|---|---|---|
| 26dB and 99% Bandwidth      | 5  |   |   |   | √ | - | - | √ | √ | √ |  | √ | √ | √ | √ |
|                             | 12 |   |   |   | √ | - | - | √ | √ | √ |  | √ | √ | √ | √ |
|                             | 13 | - | - |   | √ | - | - | √ | √ | √ |  | √ | √ | √ | √ |
|                             | 2  | √ | √ | √ | √ | √ | √ | √ | √ |   |  | √ | √ | √ | √ |
|                             | 4  | √ | √ | √ | √ | √ | √ | √ | √ |   |  | √ | √ | √ | √ |
| Band Edge                   | 5  | √ | √ | √ | √ | - | - | √ | √ |   |  | √ | √ | √ | √ |
|                             | 12 | √ | √ | √ | √ | - | - | √ | √ |   |  | √ | √ | √ | √ |
|                             | 13 | - | - | √ | √ | - | - | √ | √ |   |  | √ | √ | √ | √ |
|                             | 2  | √ | √ | √ | √ | √ | √ | √ | √ | √ |  | √ | √ |   | √ |
|                             | 4  | √ | √ | √ | √ | √ | √ | √ | √ | √ |  | √ | √ |   | √ |
| Conducted Spurious Emission | 5  | √ | √ | √ | √ | - | - | √ |   | √ |  |   | √ | √ | √ |
|                             | 12 | √ | √ | √ | √ | - | - | √ |   | √ |  |   | √ | √ | √ |
|                             | 13 | - | - | √ | √ | - | - | √ |   | √ |  |   | √ | √ | √ |
|                             | 2  | √ |   |   |   |   |   | √ | √ |   |  | √ | √ |   | √ |
|                             | 4  | √ |   |   |   |   |   | √ | √ |   |  | √ | √ |   | √ |
| Frequency Stability         | 5  |   |   |   | √ | - | - | √ | √ |   |  | √ |   | √ |   |
|                             | 12 | √ |   |   |   | - | - | √ | √ |   |  | √ | √ |   | √ |
|                             | 13 | - | - | √ |   | - | - | √ | √ |   |  | √ | √ |   | √ |
|                             | 2  | √ |   |   |   |   |   | √ |   | √ |  |   | √ | √ | √ |
|                             | 4  | √ |   |   |   |   |   | √ |   | √ |  |   | √ | √ | √ |
| Radiated Spurious Emission  | 5  | √ |   |   |   | - | - | √ |   | √ |  |   | √ | √ | √ |
|                             | 12 | √ |   |   |   | - | - | √ |   | √ |  |   | √ | √ | √ |
|                             | 13 | - | - | √ |   | - | - | √ |   | √ |  |   | √ | √ | √ |
|                             | 2  | √ |   |   |   |   |   | √ |   | √ |  |   | √ | √ | √ |
|                             | 4  | √ |   |   |   |   |   | √ |   | √ |  |   | √ | √ | √ |

Note:

1. "√" means the configuration was chosen for testing
2. "-" means the not support the bandwidth

#### Worst-Case Configuration:

For radiated emissions, EUT was investigated in three orthogonal orientation, the worst-case orientation was recorded in report

For radiated emissions, measurement was investigated from 30MHz to 10 times of fundamental, the worst case bandwidth, RB size and modulation test data was recorded.

## 2.3 Test Auxiliary Equipment

| Manufacturer   | Description                         | Model   | Serial Number |
|----------------|-------------------------------------|---------|---------------|
| unknown        | DC Power Supply                     | unknown | unknown       |
| ROHDE& SCHWARZ | WIDEBAND RADIO COMMUNICATION TESTER | CMW500  | 116218        |
| unknown        | Antenna                             | unknown | unknown       |

## 2.4 Interconnecting Cables

| Manufacturer | Description | Length | From            | To      |
|--------------|-------------|--------|-----------------|---------|
| unknown      | DC Cable    | 1.8m   | DC Power Supply | EUT     |
| unknown      | RF Cable    | 3.0m   | CMW500          | Antenna |

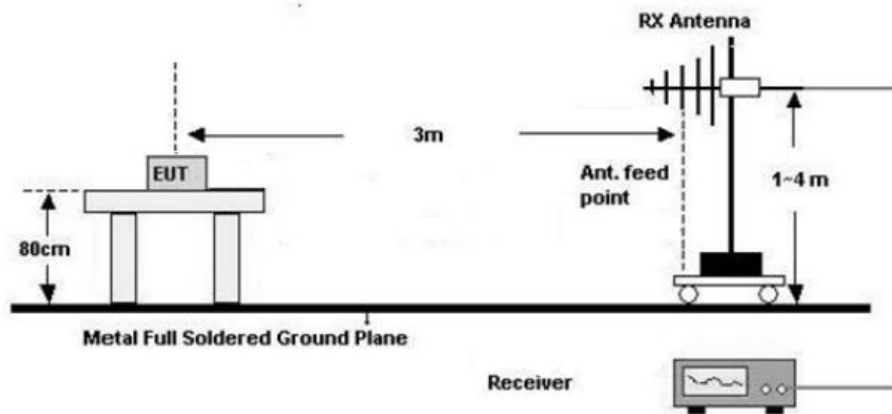
## 2.5 Block Diagram of Connection between EUT and AE



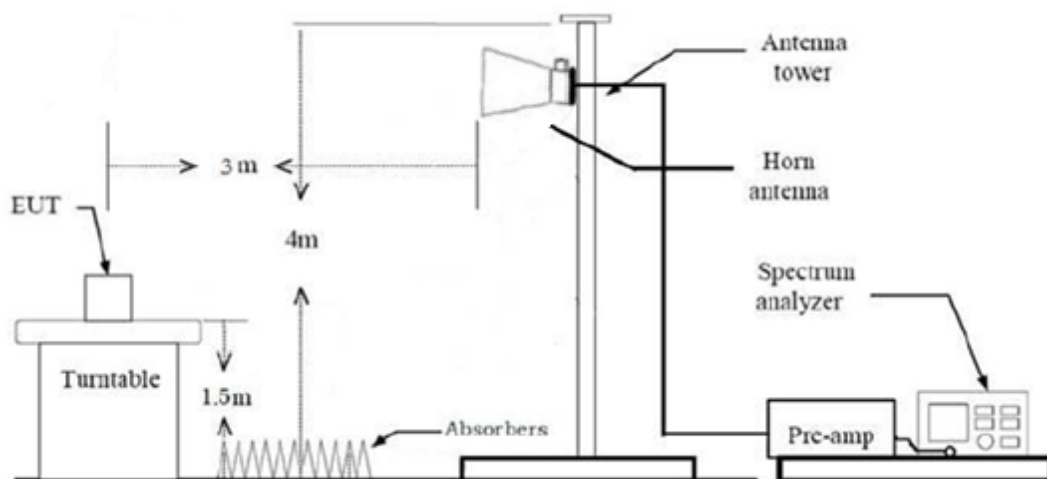
## 2.6 Test Setup

### 1) Radiated emission measurement:

30MHz-1GHz (3m SAC)

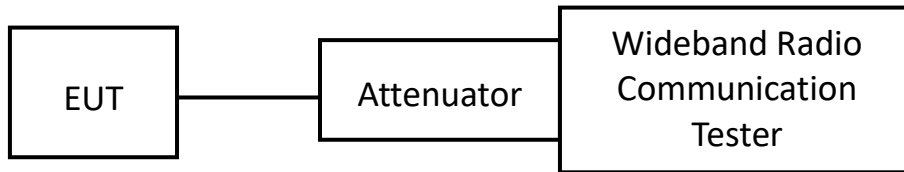


Above 1GHz (3m FAC)

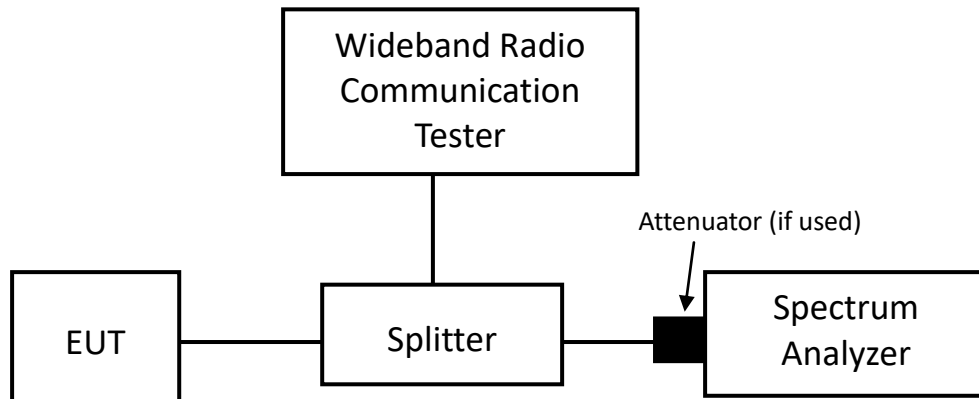


## 2) RF Conducted Test

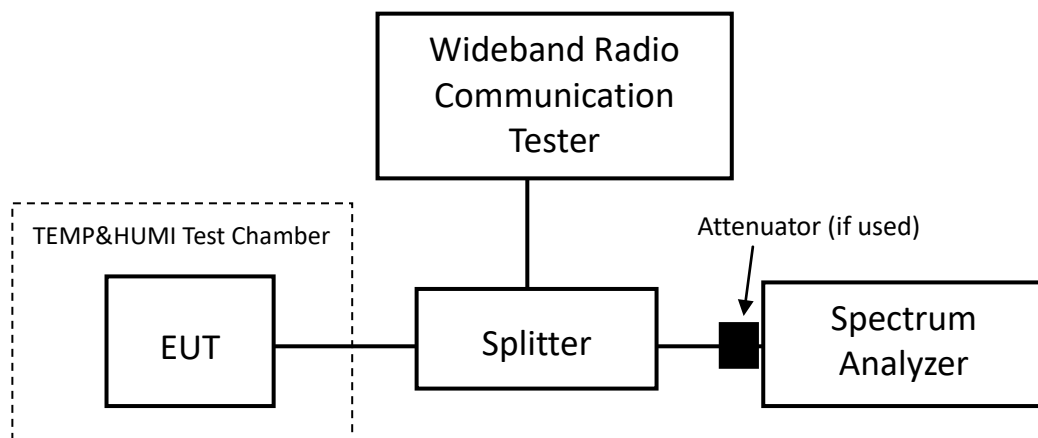
For RF Output Power test



For Bandwidth/Band edge/ PAR/Conducted spurious emissions Test



For Frequency Stability test



## 2.7 Test Procedure

### **Radiated Emission Procedure:**

#### **a) For 30MHz-1GHz:**

1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m.
2. EUT works in each mode of operation that needs to be tested. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.

#### **b) For above 1GHz:**

1. The EUT was placed on the tabletop of a rotating table 1.5 m the ground at a 3 m fully anechoic room. The measurement distance from the EUT to the receiving antenna is 3 m.
2. EUT works in each mode of operation that needs to be tested, and having the EUT continuously working. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.
3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.

### **RF Conducted Test:**

1. The antenna port of EUT was connected to the RF port of the test equipment (Wideband Radio Communication Tester or Spectrum analyzer) through Attenuator and RF cable.
2. The cable assembly insertion loss of 7dB (including 6.0 dB Splitter, 1.0 dB cable) was entered as an offset in the power meter. Note: Actual cable loss was unavailable at the time of testing, therefore a loss of 1.0dB was assumed as worst case. This was later verified to be true by laboratory. ( if the RF cable provided by client, the cable loss declared by client)
3. The EUT is keeping in continuous transmission mode and tested in all modulation modes.

## 2.8 Measurement Method

| Description of Test          | Measurement Method               |
|------------------------------|----------------------------------|
| RF Output Power              | ANSI C63.26-2015 section 5.2     |
| ERP/EIRP                     | ANSI C63.26-2015 section 5.2.5.5 |
| Peak-to-Average Ratio        | ANSI C63.26-2015 section 5.2.3.4 |
| 26dB and 99% Bandwidth       | ANSI C63.26-2015 section 5.4     |
| Band Edge                    | ANSI C63.26-2015 section 5.7.3   |
| Conducted Spurious Emissions | ANSI C63.26-2015 section 5.7.4   |
| Frequency Stability          | ANSI C63.26-2015 section 5.6     |
| Radiated Spurious Emissions  | ANSI C63.26-2015 section 5.5.4   |

## 2.9 Measurement Equipment

| Manufacturer           | Description                         | Model       | Management No. | Calibration Date | Calibration Due Date |
|------------------------|-------------------------------------|-------------|----------------|------------------|----------------------|
| Radiated Emission Test |                                     |             |                |                  |                      |
| R&S                    | EMI test receiver                   | ESR3        | 102758         | 2023/7/3         | 2024/7/2             |
| ROHDE& SCHWARZ         | SPECTRUM ANALYZER                   | FSV40-N     | 101608         | 2023/7/3         | 2024/7/2             |
| SONOMA INSTRUMENT      | Low frequency amplifier             | 310         | 186014         | 2023/7/12        | 2024/7/11            |
| COM-POWER              | preamplifier                        | PAM-118A    | 18040152       | 2023/8/21        | 2024/8/20            |
| COM-POWER              | Amplifier                           | PAM-840A    | 461306         | 2023/8/8         | 2024/8/7             |
| SCHWARZBECK            | Log - periodic wideband antenna     | VULB 9163   | 9163-872       | 2023/7/7         | 2024/7/6             |
| Astro Antenna Ltd      | Horn antenna                        | AHA-118S    | 3015           | 2023/7/6         | 2024/7/5             |
| Ducommun technologies  | Horn Antenna                        | ARH-4223-02 | 1007726-03     | 2023/7/10        | 2024/7/9             |
| N/A                    | Coaxial Cable                       | N/A         | NO.9           | 2023/8/8         | 2024/8/7             |
| N/A                    | Coaxial Cable                       | N/A         | NO.10          | 2023/8/8         | 2024/8/7             |
| N/A                    | Coaxial Cable                       | N/A         | NO.11          | 2023/8/8         | 2024/8/7             |
| Audix                  | Test Software                       | E3          | 191218 V9      | /                | /                    |
| RF Conducted Test      |                                     |             |                |                  |                      |
| ROHDE& SCHWARZ         | SPECTRUM ANALYZER                   | FSU-26      | 200680/026     | 2023/7/12        | 2024/7/11            |
| BACL                   | TEMP&HUMI Test Chamber              | BTH-150     | 30022          | 2023/7/12        | 2024/7/11            |
| HP                     | Power Splitter                      | 11667A      | 1610A          | 2023/7/26        | 2024/7/25            |
| FLUKE                  | Digital Multimeter                  | 15B+        | N/A            | 2023/7/12        | 2024/7/11            |
| ROHDE& SCHWARZ         | WIDEBAND RADIO COMMUNICATION TESTER | CMW500      | 116218         | 2023/9/12        | 2024/9/11            |

Note: All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or International standards.

### 3 Test Results

#### 3.1 Test Summary

| FCC Rules                                            | Description of Test             | Result     |
|------------------------------------------------------|---------------------------------|------------|
| FCC§2.1046;<br>§ 22.913; § 24.232; §27.50            | RF Output Power                 | Compliance |
| FCC§ 2.1047                                          | Modulation Characteristics      | Compliance |
| FCC§ 2.1049; § 22.905;<br>§ 22.917; § 24.238; §27.53 | 26dB and 99% Bandwidth          | Compliance |
| FCC§ 2.1051; § 22.917;<br>§ 24.238; §27.53           | Conducted Spurious Emissions    | Compliance |
| FCC§ 22.917; § 24.238; §27.53                        | Out of band emission, Band Edge | Compliance |
| FCC§ 2.1055; § 22.355;<br>§ 24.235; §27.54           | Frequency stability             | Compliance |
| FCC§ 2.1053; § 22.917;<br>§ 24.238; §27.53           | Radiated Spurious Emissions     | Compliance |

## 3.2 Limit

| Test items                                                    | Limit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                       |                       |                       |                       |          |      |      |      |           |     |     |      |            |     |     |     |            |     |     |     |            |     |     |     |            |     |     |     |              |      |     |     |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|------|------|------|-----------|-----|-----|------|------------|-----|-----|-----|------------|-----|-----|-----|------------|-----|-----|-----|------------|-----|-----|-----|--------------|------|-----|-----|
| RF Output Power                                               | <p><b>FCC §22.913:</b></p> <p>(a)(5) The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7watts.</p> <p>(d) Power measurement. Measurement of the ERP of Cellular base transmitters and repeaters must be made using an average power measurement technique. The peak-to average ratio (PAR) of the transmission must not exceed 13 dB. Power measurements for base transmitters and repeaters must be made in accordance with either of the following:</p> <p>(1) A Commission-approved average power technique (see FCC Laboratory's Knowledge Database); or</p> <p>(2) For purposes of this section, peak transmit power must be measured over an interval of continuous transmission using instrumentation calibrated in terms of an rms equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.</p>                                                                                                                                                                                                                                      |                       |                       |                       |                       |          |      |      |      |           |     |     |      |            |     |     |     |            |     |     |     |            |     |     |     |            |     |     |     |              |      |     |     |
| Unwanted Emissions<br><br>(Out of band emission and spurious) | <p><b>FCC §22.917:</b></p> <p>(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.</p> <p>(b) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a reference bandwidth as follows:</p> <p>(1) In the spectrum below 1 GHz, instrumentation should employ a reference bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy, provided that the measured power is integrated over the full required reference bandwidth (i.e., 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.</p> <p>(2) In the spectrum above 1 GHz, instrumentation should employ a reference bandwidth of 1 MHz</p> |                       |                       |                       |                       |          |      |      |      |           |     |     |      |            |     |     |     |            |     |     |     |            |     |     |     |            |     |     |     |              |      |     |     |
| Frequency stability                                           | <p><b>FCC §22.355:</b></p> <p>Except as otherwise provided in this part, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table C-1 of this section.</p> <table><caption>Table C-1—Frequency Tolerance for Transmitters in the Public Mobile Services</caption><tr><th>Frequency range (MHz)</th><th>Base, fixed (ppm)</th><th>Mobile &gt;3 watts (ppm)</th><th>Mobile ≤3 watts (ppm)</th></tr><tr><td>25 to 50</td><td>20.0</td><td>20.0</td><td>50.0</td></tr><tr><td>50 to 450</td><td>5.0</td><td>5.0</td><td>50.0</td></tr><tr><td>450 to 512</td><td>2.5</td><td>5.0</td><td>5.0</td></tr><tr><td>821 to 896</td><td>1.5</td><td>2.5</td><td>2.5</td></tr><tr><td>928 to 929</td><td>5.0</td><td>n/a</td><td>n/a</td></tr><tr><td>929 to 960</td><td>1.5</td><td>n/a</td><td>n/a</td></tr><tr><td>2110 to 2220</td><td>10.0</td><td>n/a</td><td>n/a</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                      | Frequency range (MHz) | Base, fixed (ppm)     | Mobile >3 watts (ppm) | Mobile ≤3 watts (ppm) | 25 to 50 | 20.0 | 20.0 | 50.0 | 50 to 450 | 5.0 | 5.0 | 50.0 | 450 to 512 | 2.5 | 5.0 | 5.0 | 821 to 896 | 1.5 | 2.5 | 2.5 | 928 to 929 | 5.0 | n/a | n/a | 929 to 960 | 1.5 | n/a | n/a | 2110 to 2220 | 10.0 | n/a | n/a |
| Frequency range (MHz)                                         | Base, fixed (ppm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Mobile >3 watts (ppm) | Mobile ≤3 watts (ppm) |                       |                       |          |      |      |      |           |     |     |      |            |     |     |     |            |     |     |     |            |     |     |     |            |     |     |     |              |      |     |     |
| 25 to 50                                                      | 20.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 20.0                  | 50.0                  |                       |                       |          |      |      |      |           |     |     |      |            |     |     |     |            |     |     |     |            |     |     |     |            |     |     |     |              |      |     |     |
| 50 to 450                                                     | 5.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5.0                   | 50.0                  |                       |                       |          |      |      |      |           |     |     |      |            |     |     |     |            |     |     |     |            |     |     |     |            |     |     |     |              |      |     |     |
| 450 to 512                                                    | 2.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5.0                   | 5.0                   |                       |                       |          |      |      |      |           |     |     |      |            |     |     |     |            |     |     |     |            |     |     |     |            |     |     |     |              |      |     |     |
| 821 to 896                                                    | 1.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2.5                   | 2.5                   |                       |                       |          |      |      |      |           |     |     |      |            |     |     |     |            |     |     |     |            |     |     |     |            |     |     |     |              |      |     |     |
| 928 to 929                                                    | 5.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | n/a                   | n/a                   |                       |                       |          |      |      |      |           |     |     |      |            |     |     |     |            |     |     |     |            |     |     |     |            |     |     |     |              |      |     |     |
| 929 to 960                                                    | 1.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | n/a                   | n/a                   |                       |                       |          |      |      |      |           |     |     |      |            |     |     |     |            |     |     |     |            |     |     |     |            |     |     |     |              |      |     |     |
| 2110 to 2220                                                  | 10.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | n/a                   | n/a                   |                       |                       |          |      |      |      |           |     |     |      |            |     |     |     |            |     |     |     |            |     |     |     |            |     |     |     |              |      |     |     |

| Test items                                                | Limit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| RF Output Power                                           | <p><b>FCC §24.232:</b></p> <p>(c) Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.</p> <p>(d) Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of § 24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Unwanted Emissions<br>(Out of band emission and spurious) | <p><b>FCC §24.238:</b></p> <p>The rules in this section govern the spectral characteristics of emissions in the Broadband Personal Communications Service.</p> <p>(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least <math>43 + 10 \log(P)</math> dB.</p> <p>(b) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.</p> <p>(c) Alternative out of band emission limit. Licensees in this service may establish an alternative out of band emission limit to be used at specified band edge(s) in specified geographical areas, in lieu of that set forth in this section, pursuant to a private contractual arrangement of all affected licensees and applicants. In this event, each party to such contract shall maintain a copy of the contract in their station files and disclose it to prospective assignees or transferees and, upon request, to the FCC.</p> <p>(d) Interference caused by out of band emissions. If any emission from a transmitter operating in this service results in interference to users of another radio service, the FCC may require a greater attenuation of that emission than specified in this section.</p> |
| Frequency stability                                       | <p><b>FCC §24.235:</b></p> <p>The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Test items      | Limit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| RF Output Power | <p><b>FCC §27.50:</b></p> <p>(a)(3) Mobile and portable stations.</p> <p>(i) For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth. For mobile and portable stations using time division duplexing (TDD) technology, the duty cycle must not exceed 38 percent in the 2305-2315 MHz and 2350-2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the 2305-2315 MHz band. Power averaging shall not include intervals in which the transmitter is off.</p> <p>(ii) Mobile and portable stations are not permitted to transmit in the 2315-2320 MHz and 2345-2350 MHz bands.</p> <p>(iii) Automatic transmit power control. Mobile and portable stations transmitting in the 2305-2315 MHz band or in the 2350-2360 MHz band must employ automatic transmit power control when operating so the stations operate with the minimum power necessary for successful communications.</p> <p>(iv) Prohibition on external vehicle-mounted antennas. The use of external vehicle-mounted antennas for mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band is prohibited.</p> <p>(b)(10) Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.</p> <p>(c)(10) Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.</p> <p>(d)(4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.</p> <p>(h) The following power limits shall apply in the BRS and EBS:</p> <p>(2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.</p> |

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| <p>Unwanted Emissions<br/><br/>(Out of band emission and spurious)</p> | <p><b>FCC §27.53:</b></p> <p>(a) For operations in the 2305-2320 MHz band and the 2345-2360 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power P (with averaging performed only during periods of transmission) within the licensed band(s) of operation, in watts, by the following amounts:</p> <p>(4) For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:</p> <p>(i) By a factor of not less than: <math>43 + 10 \log (P)</math> dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than <math>55 + 10 \log (P)</math> dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than <math>61 + 10 \log (P)</math> dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than <math>67 + 10 \log (P)</math> dB on all frequencies between 2328 and 2337 MHz;</p> <p>(ii) By a factor of not less than <math>43 + 10 \log (P)</math> dB on all frequencies between 2300 and 2305 MHz, <math>55 + 10 \log (P)</math> dB on all frequencies between 2296 and 2300 MHz, <math>61 + 10 \log (P)</math> dB on all frequencies between 2292 and 2296 MHz, <math>67 + 10 \log (P)</math> dB on all frequencies between 2288 and 2292 MHz, and <math>70 + 10 \log (P)</math> dB below 2288 MHz;</p> <p>(iii) By a factor of not less than <math>43 + 10 \log (P)</math> dB on all frequencies between 2360 and 2365 MHz, and not less than <math>70 + 10 \log (P)</math> dB above 2365 MHz.</p> <p>(c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:</p> <p>(1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least <math>43 + 10 \log (P)</math> dB;</p> <p>(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least <math>43 + 10 \log (P)</math> dB;</p> <p>(3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than <math>76 + 10 \log (P)</math> dB in a 6.25 kHz band segment, for base and fixed stations;</p> <p>(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than <math>65 + 10 \log (P)</math> dB in a 6.25 kHz band segment, for mobile and portable stations;</p> <p>(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;</p> <p>(6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.</p> |
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|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     | <p>(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to <math>-70</math> dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and <math>-80</math> dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.</p> <p>(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least <math>43 + 10 \log (P)</math> dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.</p> <p>(h) AWS emission limits<br/>(1) <i>General protection levels.</i> 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 <math>43 + 10 \log_{10} (P)</math> dB.</p> <p>(m)(4) For mobile digital stations, the attenuation factor shall be not less than <math>40 + 10 \log (P)</math> dB on all frequencies between the channel edge and 5 megahertz from the channel edge, <math>43 + 10 \log (P)</math> dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and <math>55 + 10 \log (P)</math> 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 <math>43 + 10 \log (P)</math> dB on all frequencies between 2490.5 MHz and 2496 MHz and <math>55 + 10 \log (P)</math> 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.</p> |
| Frequency stability | <p><b>FCC §27.54:</b></p> <p>The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

### 3.3 RF Conducted Test Data

|                        |                                                                                     |          |            |
|------------------------|-------------------------------------------------------------------------------------|----------|------------|
| Test Date:             | 2024-06-10~2024-06-25                                                               | Test By: | Ryan Zhang |
| Environment condition: | Temperature: 25.1~26.1°C; Relative Humidity:49~59%;<br>ATM Pressure: 100.4~100.8kPa |          |            |

#### 3.3.1 RF Output Power&ERP/EIRP

##### LTE Band 2

| Bandwidth<br>(MHz) | Modulation | RB size/<br>RB Offset | Conducted Average Output<br>Power (dBm) |       |       | EIRP(dBm) |       |       |
|--------------------|------------|-----------------------|-----------------------------------------|-------|-------|-----------|-------|-------|
|                    |            |                       | Low                                     | Mid   | High  | Low       | Mid   | High  |
| 1.4                | QPSK       | RB1#0                 | 20.90                                   | 20.78 | 20.89 | 19.75     | 19.63 | 19.74 |
|                    |            | RB1#3                 | 20.87                                   | 20.79 | 20.83 | 19.72     | 19.64 | 19.68 |
|                    |            | RB1#5                 | 20.82                                   | 20.85 | 20.91 | 19.67     | 19.70 | 19.76 |
|                    |            | RB3#0                 | 19.98                                   | 19.71 | 20.04 | 18.83     | 18.56 | 18.89 |
|                    |            | RB3#3                 | 20.06                                   | 19.86 | 19.90 | 18.91     | 18.71 | 18.75 |
|                    |            | RB6#0                 | 18.82                                   | 18.53 | 18.67 | 17.67     | 17.38 | 17.52 |
|                    | 16QAM      | RB1#0                 | 19.84                                   | 19.38 | 19.68 | 18.69     | 18.23 | 18.53 |
|                    |            | RB1#3                 | 19.75                                   | 19.21 | 19.44 | 18.60     | 18.06 | 18.29 |
|                    |            | RB1#5                 | 19.67                                   | 19.44 | 19.62 | 18.52     | 18.29 | 18.47 |
|                    |            | RB3#0                 | 19.48                                   | 19.08 | 19.24 | 18.33     | 17.93 | 18.09 |
|                    |            | RB3#3                 | 19.30                                   | 19.11 | 19.27 | 18.15     | 17.96 | 18.12 |
|                    |            | RB5#0                 | 18.64                                   | 18.32 | 18.81 | 17.49     | 17.17 | 17.66 |
| 3.0                | QPSK       | RB1#1                 | 20.79                                   | 20.45 | 20.88 | 19.64     | 19.30 | 19.73 |
|                    |            | RB1#4                 | 20.63                                   | 20.50 | 20.77 | 19.48     | 19.35 | 19.62 |
|                    |            | RB1#6                 | 20.82                                   | 20.72 | 20.55 | 19.67     | 19.57 | 19.40 |
|                    |            | RB3#1                 | 19.73                                   | 19.84 | 19.80 | 18.58     | 18.69 | 18.65 |
|                    |            | RB3#4                 | 19.93                                   | 19.64 | 20.08 | 18.78     | 18.49 | 18.93 |
|                    |            | RB6#1                 | 18.64                                   | 18.32 | 18.40 | 17.49     | 17.17 | 17.25 |
|                    | 16QAM      | RB1#1                 | 19.58                                   | 19.12 | 19.61 | 18.43     | 17.97 | 18.46 |
|                    |            | RB1#4                 | 19.54                                   | 19.09 | 19.68 | 18.39     | 17.94 | 18.53 |
|                    |            | RB1#6                 | 19.61                                   | 19.21 | 19.71 | 18.46     | 18.06 | 18.56 |
|                    |            | RB3#1                 | 19.28                                   | 19.01 | 19.34 | 18.13     | 17.86 | 18.19 |
|                    |            | RB3#4                 | 19.22                                   | 19.04 | 19.38 | 18.07     | 17.89 | 18.23 |
|                    |            | RB5#1                 | 18.92                                   | 18.24 | 18.82 | 17.77     | 17.09 | 17.67 |
| 5.0                | QPSK       | RB1#0                 | 20.83                                   | 20.42 | 20.93 | 19.68     | 19.27 | 19.78 |
|                    |            | RB1#3                 | 20.54                                   | 20.35 | 20.80 | 19.39     | 19.20 | 19.65 |
|                    |            | RB1#5                 | 20.90                                   | 20.52 | 20.63 | 19.75     | 19.37 | 19.48 |

|      |       |       |       |       |       |       |       |       |
|------|-------|-------|-------|-------|-------|-------|-------|-------|
|      |       | RB3#0 | 19.73 | 19.42 | 19.64 | 18.58 | 18.27 | 18.49 |
|      |       | RB3#3 | 19.80 | 19.52 | 19.64 | 18.65 | 18.37 | 18.49 |
|      |       | RB6#0 | 19.42 | 19.05 | 19.37 | 18.27 | 17.90 | 18.22 |
|      | 16QAM | RB1#0 | 20.72 | 20.38 | 20.65 | 19.57 | 19.23 | 19.50 |
|      |       | RB1#3 | 20.69 | 20.15 | 20.64 | 19.54 | 19.00 | 19.49 |
|      |       | RB1#5 | 20.86 | 20.30 | 20.61 | 19.71 | 19.15 | 19.46 |
|      |       | RB3#0 | 19.72 | 19.24 | 19.56 | 18.57 | 18.09 | 18.41 |
|      |       | RB3#3 | 19.83 | 19.37 | 19.66 | 18.68 | 18.22 | 18.51 |
|      |       | RB5#0 | 19.24 | 18.92 | 19.12 | 18.09 | 17.77 | 17.97 |
| 10.0 | QPSK  | RB1#1 | 20.76 | 20.56 | 20.98 | 19.61 | 19.41 | 19.83 |
|      |       | RB1#4 | 20.50 | 20.14 | 20.59 | 19.35 | 18.99 | 19.44 |
|      |       | RB1#6 | 20.48 | 20.04 | 20.64 | 19.33 | 18.89 | 19.49 |
|      |       | RB3#1 | 20.52 | 20.46 | 20.70 | 19.37 | 19.31 | 19.55 |
|      |       | RB3#4 | 20.36 | 20.21 | 20.48 | 19.21 | 19.06 | 19.33 |
|      |       | RB6#1 | 20.54 | 20.27 | 20.33 | 19.39 | 19.12 | 19.18 |
|      | 16QAM | RB1#1 | 20.94 | 20.45 | 20.73 | 19.79 | 19.30 | 19.58 |
|      |       | RB1#4 | 20.40 | 20.10 | 20.37 | 19.25 | 18.95 | 19.22 |
|      |       | RB1#6 | 20.51 | 20.38 | 20.67 | 19.36 | 19.23 | 19.52 |
|      |       | RB3#1 | 20.74 | 20.25 | 20.88 | 19.59 | 19.10 | 19.73 |
|      |       | RB3#4 | 20.45 | 20.21 | 20.13 | 19.30 | 19.06 | 18.98 |
|      |       | RB5#1 | 20.39 | 20.13 | 20.46 | 19.24 | 18.98 | 19.31 |
| 15.0 | QPSK  | RB1#1 | 20.86 | 20.66 | 20.94 | 19.71 | 19.51 | 19.79 |
|      |       | RB1#4 | 20.61 | 20.24 | 20.59 | 19.46 | 19.09 | 19.44 |
|      |       | RB1#6 | 20.37 | 19.94 | 20.65 | 19.22 | 18.79 | 19.50 |
|      |       | RB3#1 | 20.53 | 20.35 | 20.70 | 19.38 | 19.20 | 19.55 |
|      |       | RB3#4 | 20.27 | 20.12 | 20.47 | 19.12 | 18.97 | 19.32 |
|      |       | RB6#1 | 20.53 | 20.18 | 20.24 | 19.38 | 19.03 | 19.09 |
|      | 16QAM | RB1#1 | 20.85 | 20.36 | 20.84 | 19.70 | 19.21 | 19.69 |
|      |       | RB1#4 | 20.30 | 20.09 | 20.36 | 19.15 | 18.94 | 19.21 |
|      |       | RB1#6 | 20.40 | 20.49 | 20.58 | 19.25 | 19.34 | 19.43 |
|      |       | RB3#1 | 20.64 | 20.35 | 20.98 | 19.49 | 19.20 | 19.83 |
|      |       | RB3#4 | 20.44 | 20.30 | 20.24 | 19.29 | 19.15 | 19.09 |
|      |       | RB5#1 | 20.40 | 20.02 | 20.57 | 19.25 | 18.87 | 19.42 |
| 20.0 | QPSK  | RB1#2 | 20.85 | 20.67 | 20.98 | 19.70 | 19.52 | 19.83 |
|      |       | RB1#4 | 20.60 | 20.13 | 20.58 | 19.45 | 18.98 | 19.43 |
|      |       | RB1#7 | 20.48 | 20.14 | 20.74 | 19.33 | 18.99 | 19.59 |
|      |       | RB3#2 | 20.43 | 20.46 | 20.80 | 19.28 | 19.31 | 19.65 |
|      |       | RB3#5 | 20.47 | 20.31 | 20.47 | 19.32 | 19.16 | 19.32 |
|      |       | RB6#2 | 20.45 | 20.37 | 20.22 | 19.30 | 19.22 | 19.07 |
|      | 16QAM | RB1#2 | 20.82 | 20.44 | 20.63 | 19.67 | 19.29 | 19.48 |

|  |  |       |       |       |       |       |       |       |
|--|--|-------|-------|-------|-------|-------|-------|-------|
|  |  | RB1#5 | 20.51 | 20.11 | 20.26 | 19.36 | 18.96 | 19.11 |
|  |  | RB1#7 | 20.50 | 20.28 | 20.67 | 19.35 | 19.13 | 19.52 |
|  |  | RB3#2 | 20.75 | 20.24 | 20.87 | 19.60 | 19.09 | 19.72 |
|  |  | RB3#5 | 20.46 | 20.12 | 20.22 | 19.31 | 18.97 | 19.07 |
|  |  | RB5#2 | 20.38 | 20.14 | 20.46 | 19.23 | 18.99 | 19.31 |

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) - Cable Loss(dB)

For Band2: Antenna Gain = -1.15dBi

Cable Loss=0dB\*(provided by the applicant)

Limit: EIRP≤33dBm

#### LTE Band 4

| Bandwidth<br>(MHz) | Modulation | RB size/<br>RB Offset | Conducted Average<br>Output Power (dBm) |       |       | EIRP(dBm) |       |       |
|--------------------|------------|-----------------------|-----------------------------------------|-------|-------|-----------|-------|-------|
|                    |            |                       | Low                                     | Mid   | High  | Low       | Mid   | High  |
| 1.4                | QPSK       | RB1#0                 | 20.99                                   | 20.89 | 20.79 | 20.26     | 20.16 | 20.06 |
|                    |            | RB1#3                 | 20.86                                   | 20.68 | 20.82 | 20.13     | 19.95 | 20.09 |
|                    |            | RB1#5                 | 20.91                                   | 20.85 | 20.90 | 20.18     | 20.12 | 20.17 |
|                    |            | RB3#0                 | 20.09                                   | 19.61 | 19.95 | 19.36     | 18.88 | 19.22 |
|                    |            | RB3#3                 | 19.97                                   | 19.87 | 20.01 | 19.24     | 19.14 | 19.28 |
|                    |            | RB6#0                 | 18.71                                   | 18.62 | 18.56 | 17.98     | 17.89 | 17.83 |
|                    | 16QAM      | RB1#0                 | 19.74                                   | 19.48 | 19.79 | 19.01     | 18.75 | 19.06 |
|                    |            | RB1#3                 | 19.66                                   | 19.11 | 19.35 | 18.93     | 18.38 | 18.62 |
|                    |            | RB1#5                 | 19.77                                   | 19.54 | 19.51 | 19.04     | 18.81 | 18.78 |
|                    |            | RB3#0                 | 19.58                                   | 19.18 | 19.23 | 18.85     | 18.45 | 18.50 |
|                    |            | RB3#3                 | 19.21                                   | 19.11 | 19.37 | 18.48     | 18.38 | 18.64 |
|                    |            | RB5#0                 | 18.53                                   | 18.21 | 18.91 | 17.80     | 17.48 | 18.18 |
| 3.0                | QPSK       | RB1#1                 | 20.90                                   | 20.54 | 20.99 | 20.17     | 19.81 | 20.26 |
|                    |            | RB1#4                 | 20.52                                   | 20.60 | 20.67 | 19.79     | 19.87 | 19.94 |
|                    |            | RB1#6                 | 20.81                                   | 20.61 | 20.54 | 20.08     | 19.88 | 19.81 |
|                    |            | RB3#1                 | 19.62                                   | 19.74 | 19.90 | 18.89     | 19.01 | 19.17 |
|                    |            | RB3#4                 | 19.94                                   | 19.75 | 19.98 | 19.21     | 19.02 | 19.25 |
|                    |            | RB6#1                 | 18.53                                   | 18.22 | 18.31 | 17.80     | 17.49 | 17.58 |
|                    | 16QAM      | RB1#1                 | 19.48                                   | 19.21 | 19.62 | 18.75     | 18.48 | 18.89 |
|                    |            | RB1#4                 | 19.43                                   | 19.10 | 19.57 | 18.70     | 18.37 | 18.84 |
|                    |            | RB1#6                 | 19.52                                   | 19.21 | 19.81 | 18.79     | 18.48 | 19.08 |
|                    |            | RB3#1                 | 19.17                                   | 19.10 | 19.23 | 18.44     | 18.37 | 18.50 |
|                    |            | RB3#4                 | 19.11                                   | 19.14 | 19.39 | 18.38     | 18.41 | 18.66 |
|                    |            | RB5#1                 | 19.01                                   | 18.14 | 18.73 | 18.28     | 17.41 | 18.00 |

|      |       |       |       |       |       |       |       |       |
|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 5.0  | QPSK  | RB1#0 | 20.74 | 20.51 | 20.85 | 20.01 | 19.78 | 20.12 |
|      |       | RB1#3 | 20.43 | 20.46 | 20.90 | 19.70 | 19.73 | 20.17 |
|      |       | RB1#5 | 20.80 | 20.51 | 20.53 | 20.07 | 19.78 | 19.80 |
|      |       | RB3#0 | 19.74 | 19.31 | 19.75 | 19.01 | 18.58 | 19.02 |
|      |       | RB3#3 | 19.81 | 19.42 | 19.55 | 19.08 | 18.69 | 18.82 |
|      |       | RB6#0 | 19.33 | 19.06 | 19.27 | 18.60 | 18.33 | 18.54 |
|      | 16QAM | RB1#0 | 20.71 | 20.28 | 20.64 | 19.98 | 19.55 | 19.91 |
|      |       | RB1#3 | 20.79 | 20.14 | 20.65 | 20.06 | 19.41 | 19.92 |
|      |       | RB1#5 | 20.97 | 20.31 | 20.51 | 20.24 | 19.58 | 19.78 |
|      |       | RB3#0 | 19.81 | 19.35 | 19.55 | 19.08 | 18.62 | 18.82 |
|      |       | RB3#3 | 19.73 | 19.36 | 19.65 | 19.00 | 18.63 | 18.92 |
|      |       | RB5#0 | 19.15 | 19.03 | 19.01 | 18.42 | 18.30 | 18.28 |
| 10.0 | QPSK  | RB1#1 | 20.77 | 20.47 | 20.99 | 20.04 | 19.74 | 20.26 |
|      |       | RB1#4 | 20.61 | 20.25 | 20.59 | 19.88 | 19.52 | 19.86 |
|      |       | RB1#6 | 20.39 | 20.15 | 20.74 | 19.66 | 19.42 | 20.01 |
|      |       | RB3#1 | 20.42 | 20.56 | 20.59 | 19.69 | 19.83 | 19.86 |
|      |       | RB3#4 | 20.36 | 20.30 | 20.37 | 19.63 | 19.57 | 19.64 |
|      |       | RB6#1 | 20.44 | 20.18 | 20.32 | 19.71 | 19.45 | 19.59 |
|      | 16QAM | RB1#1 | 20.84 | 20.34 | 20.82 | 20.11 | 19.61 | 20.09 |
|      |       | RB1#4 | 20.41 | 19.99 | 20.47 | 19.68 | 19.26 | 19.74 |
|      |       | RB1#6 | 20.62 | 20.48 | 20.67 | 19.89 | 19.75 | 19.94 |
|      |       | RB3#1 | 20.64 | 20.34 | 20.97 | 19.91 | 19.61 | 20.24 |
|      |       | RB3#4 | 20.56 | 20.22 | 20.22 | 19.83 | 19.49 | 19.49 |
|      |       | RB5#1 | 20.39 | 20.14 | 20.47 | 19.66 | 19.41 | 19.74 |
| 15.0 | QPSK  | RB1#1 | 20.85 | 20.75 | 20.93 | 20.12 | 20.02 | 20.20 |
|      |       | RB1#4 | 20.70 | 20.13 | 20.58 | 19.97 | 19.40 | 19.85 |
|      |       | RB1#6 | 20.26 | 19.95 | 20.64 | 19.53 | 19.22 | 19.91 |
|      |       | RB3#1 | 20.43 | 20.45 | 20.71 | 19.70 | 19.72 | 19.98 |
|      |       | RB3#4 | 20.28 | 20.02 | 20.46 | 19.55 | 19.29 | 19.73 |
|      |       | RB6#1 | 20.44 | 20.08 | 20.23 | 19.71 | 19.35 | 19.50 |
|      | 16QAM | RB1#1 | 20.76 | 20.37 | 20.84 | 20.03 | 19.64 | 20.11 |
|      |       | RB1#4 | 20.29 | 20.09 | 20.37 | 19.56 | 19.36 | 19.64 |
|      |       | RB1#6 | 20.40 | 20.60 | 20.67 | 19.67 | 19.87 | 19.94 |
|      |       | RB3#1 | 20.64 | 20.36 | 20.51 | 19.91 | 19.63 | 19.78 |
|      |       | RB3#4 | 20.55 | 20.40 | 20.25 | 19.82 | 19.67 | 19.52 |
|      |       | RB5#1 | 20.49 | 20.03 | 20.47 | 19.76 | 19.30 | 19.74 |
| 20.0 | QPSK  | RB1#2 | 20.84 | 20.66 | 20.89 | 20.11 | 19.93 | 20.16 |
|      |       | RB1#4 | 20.60 | 20.03 | 20.59 | 19.87 | 19.30 | 19.86 |
|      |       | RB1#7 | 20.58 | 20.03 | 20.85 | 19.85 | 19.30 | 20.12 |
|      |       | RB3#2 | 20.33 | 20.36 | 20.91 | 19.60 | 19.63 | 20.18 |

|                                                                                                                                                                                      |       |       |       |       |       |       |       |       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                                                                                                                                                                      |       | RB3#5 | 20.37 | 20.21 | 20.36 | 19.64 | 19.48 | 19.63 |
|                                                                                                                                                                                      |       | RB6#2 | 20.55 | 20.46 | 20.31 | 19.82 | 19.73 | 19.58 |
|                                                                                                                                                                                      | 16QAM | RB1#2 | 20.72 | 20.53 | 20.53 | 19.99 | 19.80 | 19.80 |
|                                                                                                                                                                                      |       | RB1#5 | 20.52 | 20.21 | 20.27 | 19.79 | 19.48 | 19.54 |
|                                                                                                                                                                                      |       | RB1#7 | 20.60 | 20.38 | 20.56 | 19.87 | 19.65 | 19.83 |
|                                                                                                                                                                                      |       | RB3#2 | 20.86 | 20.13 | 20.76 | 20.13 | 19.40 | 20.03 |
|                                                                                                                                                                                      |       | RB3#5 | 20.46 | 20.03 | 20.12 | 19.73 | 19.30 | 19.39 |
|                                                                                                                                                                                      |       | RB5#2 | 20.37 | 20.03 | 20.45 | 19.64 | 19.30 | 19.72 |
| Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) - Cable Loss(dB)<br>For Band4: Antenna Gain = -0.73dBi<br>Cable Loss=0dB*(provided by the applicant)<br>Limit: EIRP≤30dBm |       |       |       |       |       |       |       |       |

LTE Band 5

| Bandwidth<br>(MHz) | Modulation | RB size/<br>RB Offset | Conducted Average Output<br>Power (dBm) |       |       | ERP(dBm) |       |       |
|--------------------|------------|-----------------------|-----------------------------------------|-------|-------|----------|-------|-------|
|                    |            |                       | Low                                     | Mid   | High  | Low      | Mid   | High  |
| 1.4                | QPSK       | RB1#0                 | 20.31                                   | 20.51 | 20.37 | 17.39    | 17.59 | 17.45 |
|                    |            | RB1#3                 | 20.22                                   | 20.36 | 20.52 | 17.30    | 17.44 | 17.60 |
|                    |            | RB1#5                 | 20.42                                   | 20.48 | 20.49 | 17.50    | 17.56 | 17.57 |
|                    |            | RB3#0                 | 20.20                                   | 19.62 | 19.95 | 17.28    | 16.70 | 17.03 |
|                    |            | RB3#3                 | 20.08                                   | 19.78 | 19.91 | 17.16    | 16.86 | 16.99 |
|                    |            | RB6#0                 | 18.72                                   | 18.51 | 18.56 | 15.80    | 15.59 | 15.64 |
|                    | 16QAM      | RB1#0                 | 19.73                                   | 19.58 | 19.89 | 16.81    | 16.66 | 16.97 |
|                    |            | RB1#3                 | 19.77                                   | 19.00 | 19.36 | 16.85    | 16.08 | 16.44 |
|                    |            | RB1#5                 | 19.76                                   | 19.55 | 19.52 | 16.84    | 16.63 | 16.60 |
|                    |            | RB3#0                 | 19.47                                   | 19.17 | 19.23 | 16.55    | 16.25 | 16.31 |
|                    |            | RB3#3                 | 19.12                                   | 19.22 | 19.26 | 16.20    | 16.30 | 16.34 |
|                    |            | RB5#0                 | 18.43                                   | 18.21 | 19.02 | 15.51    | 15.29 | 16.10 |
| 3.0                | QPSK       | RB1#1                 | 20.90                                   | 20.63 | 20.88 | 17.98    | 17.71 | 17.96 |
|                    |            | RB1#4                 | 20.51                                   | 20.50 | 20.67 | 17.59    | 17.58 | 17.75 |
|                    |            | RB1#6                 | 20.70                                   | 20.62 | 20.63 | 17.78    | 17.70 | 17.71 |
|                    |            | RB3#1                 | 19.63                                   | 19.64 | 19.99 | 16.71    | 16.72 | 17.07 |
|                    |            | RB3#4                 | 19.94                                   | 19.86 | 19.99 | 17.02    | 16.94 | 17.07 |
|                    |            | RB6#1                 | 18.63                                   | 18.32 | 18.4  | 15.71    | 15.40 | 15.48 |
|                    | 16QAM      | RB1#1                 | 19.48                                   | 19.30 | 19.72 | 16.56    | 16.38 | 16.80 |
|                    |            | RB1#4                 | 19.42                                   | 19.11 | 19.67 | 16.50    | 16.19 | 16.75 |
|                    |            | RB1#6                 | 19.51                                   | 19.20 | 19.82 | 16.59    | 16.28 | 16.90 |

|      |       |       |       |       |       |       |       |       |
|------|-------|-------|-------|-------|-------|-------|-------|-------|
|      |       | RB3#1 | 19.07 | 19.20 | 19.12 | 16.15 | 16.28 | 16.20 |
|      |       | RB3#4 | 19.12 | 19.25 | 19.49 | 16.20 | 16.33 | 16.57 |
|      |       | RB5#1 | 18.91 | 18.15 | 18.84 | 15.99 | 15.23 | 15.92 |
| 5.0  | QPSK  | RB1#0 | 20.74 | 20.61 | 20.85 | 17.82 | 17.69 | 17.93 |
|      |       | RB1#3 | 20.54 | 20.46 | 20.89 | 17.62 | 17.54 | 17.97 |
|      |       | RB1#5 | 20.89 | 20.50 | 20.63 | 17.97 | 17.58 | 17.71 |
|      |       | RB3#0 | 19.73 | 19.4  | 19.74 | 16.81 | 16.48 | 16.82 |
|      |       | RB3#3 | 19.92 | 19.42 | 19.66 | 17.00 | 16.50 | 16.74 |
|      |       | RB6#0 | 19.32 | 18.96 | 19.36 | 16.40 | 16.04 | 16.44 |
|      | 16QAM | RB1#0 | 20.81 | 20.38 | 20.55 | 17.89 | 17.46 | 17.63 |
|      |       | RB1#3 | 20.80 | 20.15 | 20.76 | 17.88 | 17.23 | 17.84 |
|      |       | RB1#5 | 20.86 | 20.30 | 20.4  | 17.94 | 17.38 | 17.48 |
|      |       | RB3#0 | 19.92 | 19.36 | 19.64 | 17.00 | 16.44 | 16.72 |
|      |       | RB3#3 | 19.84 | 19.27 | 19.55 | 16.92 | 16.35 | 16.63 |
|      |       | RB5#0 | 19.25 | 18.94 | 18.92 | 16.33 | 16.02 | 16.00 |
| 10.0 | QPSK  | RB1#1 | 20.67 | 20.38 | 20.9  | 17.75 | 17.46 | 17.98 |
|      |       | RB1#4 | 20.50 | 20.14 | 20.49 | 17.58 | 17.22 | 17.57 |
|      |       | RB1#6 | 20.28 | 20.14 | 20.83 | 17.36 | 17.22 | 17.91 |
|      |       | RB3#1 | 20.42 | 20.56 | 20.5  | 17.50 | 17.64 | 17.58 |
|      |       | RB3#4 | 20.26 | 20.29 | 20.37 | 17.34 | 17.37 | 17.45 |
|      |       | RB6#1 | 20.55 | 20.29 | 20.33 | 17.63 | 17.37 | 17.41 |
|      | 16QAM | RB1#1 | 20.94 | 20.24 | 20.83 | 18.02 | 17.32 | 17.91 |
|      |       | RB1#4 | 20.40 | 19.88 | 20.47 | 17.48 | 16.96 | 17.55 |
|      |       | RB1#6 | 20.53 | 20.58 | 20.66 | 17.61 | 17.66 | 17.74 |
|      |       | RB3#1 | 20.55 | 20.35 | 20.87 | 17.63 | 17.43 | 17.95 |
|      |       | RB3#4 | 20.65 | 20.31 | 20.33 | 17.73 | 17.39 | 17.41 |
|      |       | RB5#1 | 20.39 | 20.24 | 20.46 | 17.47 | 17.32 | 17.54 |

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable Loss(dB)

For Band5: Antenna Gain = -0.77dBi = -2.92dBd (0dBd=2.15dBi)

Cable Loss=0dB\* (provided by the applicant)

Limit: ERP≤38.45dBm

**LTE Band 12**

| Bandwidth<br>(MHz) | Modulation | RB size/<br>RB Offset | Conducted Average Output<br>Power (dBm) |       |       | ERP(dBm) |       |       |
|--------------------|------------|-----------------------|-----------------------------------------|-------|-------|----------|-------|-------|
|                    |            |                       | Low                                     | Mid   | High  | Low      | Mid   | High  |
| 1.4                | QPSK       | RB1#0                 | 20.98                                   | 20.99 | 20.88 | 18.00    | 18.01 | 17.90 |
|                    |            | RB1#3                 | 20.75                                   | 20.77 | 20.73 | 17.77    | 17.79 | 17.75 |
|                    |            | RB1#5                 | 20.84                                   | 20.76 | 20.92 | 17.86    | 17.78 | 17.94 |
|                    |            | RB3#0                 | 19.99                                   | 19.70 | 19.95 | 17.01    | 16.72 | 16.97 |
|                    |            | RB3#3                 | 19.87                                   | 19.88 | 20.01 | 16.89    | 16.90 | 17.03 |
|                    |            | RB6#0                 | 18.82                                   | 18.51 | 18.55 | 15.84    | 15.53 | 15.57 |
|                    | 16QAM      | RB1#0                 | 19.63                                   | 19.58 | 19.69 | 16.65    | 16.60 | 16.71 |
|                    |            | RB1#3                 | 19.57                                   | 19.00 | 19.25 | 16.59    | 16.02 | 16.27 |
|                    |            | RB1#5                 | 19.68                                   | 19.54 | 19.6  | 16.70    | 16.56 | 16.62 |
|                    |            | RB3#0                 | 19.59                                   | 19.29 | 19.13 | 16.61    | 16.31 | 16.15 |
|                    |            | RB3#3                 | 19.22                                   | 19.21 | 19.27 | 16.24    | 16.23 | 16.29 |
|                    |            | RB5#0                 | 18.52                                   | 18.31 | 18.9  | 15.54    | 15.33 | 15.92 |
| 3.0                | QPSK       | RB1#1                 | 20.89                                   | 20.65 | 20.99 | 17.91    | 17.67 | 18.01 |
|                    |            | RB1#4                 | 20.63                                   | 20.60 | 20.57 | 17.65    | 17.62 | 17.59 |
|                    |            | RB1#6                 | 20.71                                   | 20.70 | 20.64 | 17.73    | 17.72 | 17.66 |
|                    |            | RB3#1                 | 19.61                                   | 19.63 | 19.8  | 16.63    | 16.65 | 16.82 |
|                    |            | RB3#4                 | 20.04                                   | 19.86 | 20.07 | 17.06    | 16.88 | 17.09 |
|                    |            | RB6#1                 | 18.43                                   | 18.32 | 18.22 | 15.45    | 15.34 | 15.24 |
|                    | 16QAM      | RB1#1                 | 19.59                                   | 19.20 | 19.62 | 16.61    | 16.22 | 16.64 |
|                    |            | RB1#4                 | 19.42                                   | 19.01 | 19.58 | 16.44    | 16.03 | 16.60 |
|                    |            | RB1#6                 | 19.63                                   | 19.11 | 19.92 | 16.65    | 16.13 | 16.94 |
|                    |            | RB3#1                 | 19.17                                   | 19.01 | 19.22 | 16.19    | 16.03 | 16.24 |
|                    |            | RB3#4                 | 19.21                                   | 19.24 | 19.38 | 16.23    | 16.26 | 16.40 |
|                    |            | RB5#1                 | 18.92                                   | 18.04 | 18.64 | 15.94    | 15.06 | 15.66 |
| 5.0                | QPSK       | RB1#0                 | 20.65                                   | 20.61 | 20.94 | 17.67    | 17.63 | 17.96 |
|                    |            | RB1#3                 | 20.53                                   | 20.55 | 21.00 | 17.55    | 17.57 | 18.02 |
|                    |            | RB1#5                 | 20.81                                   | 20.42 | 20.43 | 17.83    | 17.44 | 17.45 |
|                    |            | RB3#0                 | 19.83                                   | 19.40 | 19.76 | 16.85    | 16.42 | 16.78 |
|                    |            | RB3#3                 | 19.81                                   | 19.32 | 19.66 | 16.83    | 16.34 | 16.68 |
|                    |            | RB6#0                 | 19.34                                   | 19.06 | 19.37 | 16.36    | 16.08 | 16.39 |
|                    | 16QAM      | RB1#0                 | 20.72                                   | 20.18 | 20.64 | 17.74    | 17.20 | 17.66 |
|                    |            | RB1#3                 | 20.89                                   | 20.04 | 20.75 | 17.91    | 17.06 | 17.77 |
|                    |            | RB1#5                 | 20.97                                   | 20.32 | 20.42 | 17.99    | 17.34 | 17.44 |
|                    |            | RB3#0                 | 19.72                                   | 19.35 | 19.64 | 16.74    | 16.37 | 16.66 |
|                    |            | RB3#3                 | 19.74                                   | 19.45 | 19.76 | 16.76    | 16.47 | 16.78 |

|                                                                                                                                                                                                                   |       |       |       |       |       |       |       |       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                                                                                                                                                                                                   |       | RB5#0 | 19.04 | 18.92 | 18.91 | 16.06 | 15.94 | 15.93 |
| 10.0                                                                                                                                                                                                              | QPSK  | RB1#1 | 20.66 | 20.58 | 20.89 | 17.68 | 17.60 | 17.91 |
|                                                                                                                                                                                                                   |       | RB1#4 | 20.71 | 20.24 | 20.49 | 17.73 | 17.26 | 17.51 |
|                                                                                                                                                                                                                   |       | RB1#6 | 20.28 | 20.16 | 20.73 | 17.30 | 17.18 | 17.75 |
|                                                                                                                                                                                                                   |       | RB3#1 | 20.42 | 20.46 | 20.69 | 17.44 | 17.48 | 17.71 |
|                                                                                                                                                                                                                   |       | RB3#4 | 20.46 | 20.20 | 20.38 | 17.48 | 17.22 | 17.40 |
|                                                                                                                                                                                                                   |       | RB6#1 | 20.44 | 20.09 | 20.43 | 17.46 | 17.11 | 17.45 |
|                                                                                                                                                                                                                   | 16QAM | RB1#1 | 20.94 | 20.34 | 20.72 | 17.96 | 17.36 | 17.74 |
|                                                                                                                                                                                                                   |       | RB1#4 | 20.42 | 20.10 | 20.38 | 17.44 | 17.12 | 17.40 |
|                                                                                                                                                                                                                   |       | RB1#6 | 20.52 | 20.47 | 20.57 | 17.54 | 17.49 | 17.59 |
|                                                                                                                                                                                                                   |       | RB3#1 | 20.63 | 20.24 | 20.87 | 17.65 | 17.26 | 17.89 |
|                                                                                                                                                                                                                   |       | RB3#4 | 20.55 | 20.23 | 20.11 | 17.57 | 17.25 | 17.13 |
|                                                                                                                                                                                                                   |       | RB5#1 | 20.38 | 20.24 | 20.47 | 17.40 | 17.26 | 17.49 |
| Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable Loss(dB)<br>For Band12: Antenna Gain = -0.83dBi = -2.98dBd (0dBd=2.15dBi)<br>Cable Loss=0dB* (provided by the applicant)<br>Limit: ERP≤34.77dBm |       |       |       |       |       |       |       |       |

**LTE Band 13:**

| Bandwidth<br>h<br>(MHz)                                                                                                                                                                                            | Modulation<br>n | RB size/<br>RB Offset | Conducted Average Output<br>Power (dBm) |       |       | ERP(dBm) |       |       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------|-----------------------------------------|-------|-------|----------|-------|-------|
|                                                                                                                                                                                                                    |                 |                       | Low                                     | Mid   | High  | Low      | Mid   | High  |
| 5.0                                                                                                                                                                                                                | QPSK            | RB1#0                 | 20.56                                   | 20.60 | 21.05 | 17.52    | 17.56 | 18.01 |
|                                                                                                                                                                                                                    |                 | RB1#3                 | 20.54                                   | 20.55 | 20.90 | 17.50    | 17.51 | 17.86 |
|                                                                                                                                                                                                                    |                 | RB1#5                 | 20.81                                   | 20.53 | 20.54 | 17.77    | 17.49 | 17.50 |
|                                                                                                                                                                                                                    |                 | RB3#0                 | 19.73                                   | 19.50 | 19.65 | 16.69    | 16.46 | 16.61 |
|                                                                                                                                                                                                                    |                 | RB3#3                 | 19.92                                   | 19.21 | 19.57 | 16.88    | 16.17 | 16.53 |
|                                                                                                                                                                                                                    |                 | RB6#0                 | 19.44                                   | 19.16 | 19.27 | 16.40    | 16.12 | 16.23 |
|                                                                                                                                                                                                                    | 16QAM           | RB1#0                 | 20.81                                   | 20.08 | 20.73 | 17.77    | 17.04 | 17.69 |
|                                                                                                                                                                                                                    |                 | RB1#3                 | 20.79                                   | 20.03 | 20.65 | 17.75    | 16.99 | 17.61 |
|                                                                                                                                                                                                                    |                 | RB1#5                 | 20.87                                   | 20.21 | 20.53 | 17.83    | 17.17 | 17.49 |
|                                                                                                                                                                                                                    |                 | RB3#0                 | 19.61                                   | 19.24 | 19.63 | 16.57    | 16.20 | 16.59 |
|                                                                                                                                                                                                                    |                 | RB3#3                 | 19.73                                   | 19.54 | 19.85 | 16.69    | 16.50 | 16.81 |
|                                                                                                                                                                                                                    |                 | RB5#0                 | 18.93                                   | 18.82 | 18.80 | 15.89    | 15.78 | 15.76 |
| 10.0                                                                                                                                                                                                               | QPSK            | RB1#1                 | /                                       | 20.69 | /     | /        | 17.65 | /     |
|                                                                                                                                                                                                                    |                 | RB1#4                 | /                                       | 20.33 | /     | /        | 17.29 | /     |
|                                                                                                                                                                                                                    |                 | RB1#6                 | /                                       | 20.27 | /     | /        | 17.23 | /     |
|                                                                                                                                                                                                                    |                 | RB3#1                 | /                                       | 20.37 | /     | /        | 17.33 | /     |
|                                                                                                                                                                                                                    |                 | RB3#4                 | /                                       | 20.30 | /     | /        | 17.26 | /     |
|                                                                                                                                                                                                                    |                 | RB6#1                 | /                                       | 20.19 | /     | /        | 17.15 | /     |
|                                                                                                                                                                                                                    | 16QAM           | RB1#1                 | /                                       | 20.24 | /     | /        | 17.20 | /     |
|                                                                                                                                                                                                                    |                 | RB1#4                 | /                                       | 20.11 | /     | /        | 17.07 | /     |
|                                                                                                                                                                                                                    |                 | RB1#6                 | /                                       | 20.58 | /     | /        | 17.54 | /     |
|                                                                                                                                                                                                                    |                 | RB3#1                 | /                                       | 20.13 | /     | /        | 17.09 | /     |
|                                                                                                                                                                                                                    |                 | RB3#4                 | /                                       | 20.14 | /     | /        | 17.10 | /     |
|                                                                                                                                                                                                                    |                 | RB5#1                 | /                                       | 20.25 | /     | /        | 17.21 | /     |
| Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable Loss(dB)<br>For Band 13: Antenna Gain = -0.89dBi = -3.04dBd (0dBd=2.15dBi)<br>Cable Loss=0dB* (provided by the applicant)<br>Limit: ERP≤34.77dBm |                 |                       |                                         |       |       |          |       |       |

### 3.3.2 Peak-to-average ratio (PAR)

**LTE Band 2 10MHz Bandwidth**

| Modulation       | Low channel (dB) | Middle channel (dB) | High channel (dB) | PAR Limit (dB) | Result |
|------------------|------------------|---------------------|-------------------|----------------|--------|
| QPSK (1RB Size)  | 9.23             | 9.39                | 10.26             | 13             | Pass   |
| QPSK (6RB Size)  | 6.38             | 8.33                | 6.92              | 13             | Pass   |
| 16QAM (1RB Size) | 7.85             | 6.28                | 5.22              | 13             | Pass   |
| 16QAM (5RB Size) | 7.85             | 8.14                | 9.17              | 13             | Pass   |

**LTE Band 4 10MHz Bandwidth**

| Modulation       | Low channel (dB) | Middle channel (dB) | High channel (dB) | PAR Limit (dB) | Result |
|------------------|------------------|---------------------|-------------------|----------------|--------|
| QPSK (1RB Size)  | 4.97             | 5.13                | 5.83              | 13             | Pass   |
| QPSK (6RB Size)  | 5.71             | 7.88                | 8.75              | 13             | Pass   |
| 16QAM (1RB Size) | 6.41             | 7.28                | 7.15              | 13             | Pass   |
| 16QAM (5RB Size) | 6.83             | 8.69                | 7.05              | 13             | Pass   |

**LTE Band 5 10MHz Bandwidth**

| Modulation       | Low channel (dB) | Middle channel (dB) | High channel (dB) | PAR Limit (dB) | Result |
|------------------|------------------|---------------------|-------------------|----------------|--------|
| QPSK (1RB Size)  | 8.21             | 4.46                | 5.77              | 13             | Pass   |
| QPSK (6RB Size)  | 5.58             | 7.18                | 5.22              | 13             | Pass   |
| 16QAM (1RB Size) | 9.17             | 7.66                | 6.79              | 13             | Pass   |
| 16QAM (5RB Size) | 5.80             | 5.38                | 9.46              | 13             | Pass   |

**LTE Band 12 10MHz Bandwidth**

| <b>Modulation</b>   | <b>Low channel (dB)</b> | <b>Middle channel (dB)</b> | <b>High channel (dB)</b> | <b>PAR Limit (dB)</b> | <b>Result</b> |
|---------------------|-------------------------|----------------------------|--------------------------|-----------------------|---------------|
| QPSK<br>(1RB Size)  | 6.47                    | 6.83                       | 8.91                     | 13                    | Pass          |
| QPSK<br>(6RB Size)  | 8.40                    | 8.69                       | 8.40                     | 13                    | Pass          |
| 16QAM<br>(1RB Size) | 8.04                    | 8.14                       | 8.65                     | 13                    | Pass          |
| 16QAM<br>(5RB Size) | 7.24                    | 8.11                       | 7.85                     | 13                    | Pass          |

**LTE Band 13 10MHz Bandwidth**

| <b>Modulation</b>   | <b>Low channel (dB)</b> | <b>Middle channel (dB)</b> | <b>High channel (dB)</b> | <b>PAR Limit (dB)</b> | <b>Result</b> |
|---------------------|-------------------------|----------------------------|--------------------------|-----------------------|---------------|
| QPSK<br>(1RB Size)  | /                       | 8.78                       | /                        | 13                    | Pass          |
| QPSK<br>(6RB Size)  | /                       | 6.67                       | /                        | 13                    | Pass          |
| 16QAM<br>(1RB Size) | /                       | 4.90                       | /                        | 13                    | Pass          |
| 16QAM<br>(5RB Size) | /                       | 7.85                       | /                        | 13                    | Pass          |

### 3.3.3 26dB and 99% Bandwidth

#### LTE Band 2:

| Bandwidth | Modulation | Low channel  |                      | Middle channel |                      | High channel |                      |
|-----------|------------|--------------|----------------------|----------------|----------------------|--------------|----------------------|
|           |            | OBW<br>(MHz) | 26dB<br>EBW<br>(MHz) | OBW<br>(MHz)   | 26dB<br>EBW<br>(MHz) | OBW<br>(MHz) | 26dB<br>EBW<br>(MHz) |
| 1.4 MHz   | QPSK       | 1.111        | 1.313                | 1.099          | 1.296                | 1.094        | 1.284                |
|           | 16QAM      | 0.937        | 1.144                | 0.937          | 1.139                | 0.942        | 1.228                |
| 3 MHz     | QPSK       | 1.106        | 1.288                | 1.116          | 1.298                | 1.116        | 1.310                |
|           | 16QAM      | 0.942        | 1.154                | 0.948          | 1.142                | 0.948        | 1.154                |
| 5 MHz     | QPSK       | 1.120        | 1.332                | 1.120          | 1.333                | 1.120        | 1.325                |
|           | 16QAM      | 0.960        | 1.143                | 0.960          | 1.188                | 0.940        | 1.164                |
| 10 MHz    | QPSK       | 1.120        | 1.314                | 1.120          | 1.327                | 1.120        | 1.314                |
|           | 16QAM      | 0.960        | 1.177                | 0.960          | 1.247                | 0.960        | 1.154                |
| 15 MHz    | QPSK       | 1.080        | 1.348                | 1.140          | 1.394                | 1.080        | 1.298                |
|           | 16QAM      | 0.960        | 1.204                | 0.960          | 1.202                | 1.020        | 1.154                |
| 20 MHz    | QPSK       | 1.120        | 1.282                | 1.200          | 1.410                | 1.120        | 1.282                |
|           | 16QAM      | 1.040        | 1.202                | 1.040          | 1.282                | 0.960        | 1.218                |

#### LTE Band 4:

| Bandwidth | Modulation | Low channel  |                   | Middle channel |                   | High channel |                   |
|-----------|------------|--------------|-------------------|----------------|-------------------|--------------|-------------------|
|           |            | OBW<br>(MHz) | 26dB EBW<br>(MHz) | OBW<br>(MHz)   | 26dB EBW<br>(MHz) | OBW<br>(MHz) | 26dB EBW<br>(MHz) |
| 1.4 MHz   | QPSK       | 1.098        | 1.284             | 1.104          | 1.320             | 1.098        | 1.284             |
|           | 16QAM      | 0.942        | 1.224             | 0.942          | 1.140             | 0.942        | 1.224             |
| 3 MHz     | QPSK       | 1.116        | 1.308             | 1.116          | 1.320             | 1.092        | 1.296             |
|           | 16QAM      | 0.948        | 1.152             | 0.948          | 1.152             | 0.948        | 1.248             |
| 5 MHz     | QPSK       | 1.100        | 1.340             | 1.120          | 1.320             | 1.100        | 1.320             |
|           | 16QAM      | 0.940        | 1.140             | 0.960          | 1.180             | 0.940        | 1.140             |
| 10 MHz    | QPSK       | 1.120        | 1.320             | 1.120          | 1.320             | 1.120        | 1.320             |
|           | 16QAM      | 0.960        | 1.200             | 0.960          | 1.160             | 0.960        | 1.120             |
| 15 MHz    | QPSK       | 1.080        | 1.320             | 1.140          | 1.440             | 1.140        | 1.380             |
|           | 16QAM      | 0.900        | 1.140             | 0.960          | 1.200             | 0.960        | 1.200             |
| 20 MHz    | QPSK       | 1.200        | 1.360             | 1.120          | 1.360             | 1.120        | 1.360             |
|           | 16QAM      | 0.960        | 1.200             | 1.040          | 1.200             | 0.960        | 1.200             |

**LTE Band 5:**

| Bandwidth | Modulation | Low channel  |                   | Middle channel |                   | High channel |                   |
|-----------|------------|--------------|-------------------|----------------|-------------------|--------------|-------------------|
|           |            | OBW<br>(MHz) | 26dB EBW<br>(MHz) | OBW<br>(MHz)   | 26dB EBW<br>(MHz) | OBW<br>(MHz) | 26dB EBW<br>(MHz) |
| 1.4 MHz   | QPSK       | 1.099        | 1.282             | 1.113          | 1.316             | 1.106        | 1.307             |
|           | 16QAM      | 0.945        | 1.238             | 0.938          | 1.142             | 0.931        | 1.140             |
| 3 MHz     | QPSK       | 1.116        | 1.308             | 1.116          | 1.300             | 1.104        | 1.288             |
|           | 16QAM      | 0.948        | 1.143             | 0.936          | 1.144             | 0.948        | 1.250             |
| 5 MHz     | QPSK       | 1.120        | 1.310             | 1.120          | 1.314             | 1.100        | 1.330             |
|           | 16QAM      | 0.960        | 1.202             | 0.960          | 1.174             | 0.940        | 1.164             |
| 10 MHz    | QPSK       | 1.120        | 1.332             | 1.120          | 1.319             | 1.120        | 1.327             |
|           | 16QAM      | 0.960        | 1.236             | 0.960          | 1.223             | 0.960        | 1.158             |

**LTE Band 12:**

| Bandwidth | Modulation | Low channel  |                   | Middle channel |                   | High channel |                   |
|-----------|------------|--------------|-------------------|----------------|-------------------|--------------|-------------------|
|           |            | OBW<br>(MHz) | 26dB EBW<br>(MHz) | OBW<br>(MHz)   | 26dB EBW<br>(MHz) | OBW<br>(MHz) | 26dB EBW<br>(MHz) |
| 1.4 MHz   | QPSK       | 1.098        | 1.302             | 1.092          | 1.296             | 1.098        | 1.284             |
|           | 16QAM      | 0.930        | 1.134             | 0.942          | 1.140             | 0.936        | 1.224             |
| 3 MHz     | QPSK       | 1.116        | 1.344             | 1.116          | 1.320             | 1.092        | 1.284             |
|           | 16QAM      | 0.936        | 1.152             | 0.948          | 1.152             | 0.948        | 1.224             |
| 5 MHz     | QPSK       | 1.080        | 1.320             | 1.120          | 1.320             | 1.100        | 1.320             |
|           | 16QAM      | 0.940        | 1.140             | 0.960          | 1.180             | 0.960        | 1.140             |
| 10 MHz    | QPSK       | 1.120        | 1.360             | 1.120          | 1.320             | 1.080        | 1.320             |
|           | 16QAM      | 0.960        | 1.120             | 0.960          | 1.200             | 0.960        | 1.160             |

**LTE Band 13:**

| Bandwidth | Modulation | Low channel  |                   | Middle channel |                   | High channel |                   |
|-----------|------------|--------------|-------------------|----------------|-------------------|--------------|-------------------|
|           |            | OBW<br>(MHz) | 26dB EBW<br>(MHz) | OBW<br>(MHz)   | 26dB EBW<br>(MHz) | OBW<br>(MHz) | 26dB EBW<br>(MHz) |
| 5 MHz     | QPSK       | 1.100        | 1.320             | 1.120          | 1.320             | 1.120        | 1.300             |
|           | 16QAM      | 0.940        | 1.180             | 0.940          | 1.140             | 0.940        | 1.160             |
| 10 MHz    | QPSK       | /            | /                 | 1.120          | 1.400             | /            | /                 |
|           | 16QAM      | /            | /                 | 0.960          | 1.160             | /            | /                 |

Note: Test Plots of 26dB and 99% bandwidth please refer Appendix A

### 3.3.4 Conducted Spurious Emissions

| Band    | Result          | Limit           | Verdict |
|---------|-----------------|-----------------|---------|
| LTE B2  | Refer test plot | Refer test plot | Pass    |
| LTE B4  | Refer test plot | Refer test plot | Pass    |
| LTE B5  | Refer test plot | Refer test plot | Pass    |
| LTE B12 | Refer test plot | Refer test plot | Pass    |
| LTE B13 | Refer test plot | Refer test plot | Pass    |

Note: Test Plots of Conducted Spurious Emissions please refer Appendix B

### 3.3.5 Out of band emission, Band Edge

| Band    | Result          | Limit           | Verdict |
|---------|-----------------|-----------------|---------|
| LTE B2  | Refer test plot | Refer test plot | Pass    |
| LTE B4  | Refer test plot | Refer test plot | Pass    |
| LTE B5  | Refer test plot | Refer test plot | Pass    |
| LTE B12 | Refer test plot | Refer test plot | Pass    |
| LTE B13 | Refer test plot | Refer test plot | Pass    |

Note: Test Plots of Band Edge please refer Appendix C

### 3.3.6 FREQUENCY STABILITY

**QPSK:**

**Band 2:**

| 1.4 MHz Test Channel: Lowest for Lower Edge, Highest for Upper Edge |                                      |                         |                         |                               |                               |
|---------------------------------------------------------------------|--------------------------------------|-------------------------|-------------------------|-------------------------------|-------------------------------|
| Temperature<br>(°C)                                                 | Power Supplied<br>(V <sub>DC</sub> ) | F <sub>L</sub><br>(MHz) | F <sub>H</sub><br>(MHz) | F <sub>L</sub> Limit<br>(MHz) | F <sub>H</sub> Limit<br>(MHz) |
| -30                                                                 | 3.70                                 | 1850.150                | 1850                    | 1909.853                      | 1910                          |
| -20                                                                 |                                      | 1850.143                | 1850                    | 1909.843                      | 1910                          |
| -10                                                                 |                                      | 1850.176                | 1850                    | 1909.840                      | 1910                          |
| 0                                                                   |                                      | 1850.181                | 1850                    | 1909.852                      | 1910                          |
| 10                                                                  |                                      | 1850.139                | 1850                    | 1909.838                      | 1910                          |
| 20                                                                  |                                      | 1850.145                | 1850                    | 1909.844                      | 1910                          |
| 30                                                                  |                                      | 1850.164                | 1850                    | 1909.862                      | 1910                          |
| 40                                                                  |                                      | 1850.153                | 1850                    | 1909.851                      | 1910                          |
| 50                                                                  |                                      | 1850.142                | 1850                    | 1909.849                      | 1910                          |
| 20                                                                  | 3.15                                 | 1850.160                | 1850                    | 1909.832                      | 1910                          |
|                                                                     | 4.26                                 | 1850.171                | 1850                    | 1909.859                      | 1910                          |

**Band 4:**

| 1.4 MHz Test Channel: Lowest for Lower Edge, Highest for Upper Edge |                                      |                         |                         |                               |                               |
|---------------------------------------------------------------------|--------------------------------------|-------------------------|-------------------------|-------------------------------|-------------------------------|
| Temperature<br>(°C)                                                 | Power Supplied<br>(V <sub>DC</sub> ) | F <sub>L</sub><br>(MHz) | F <sub>H</sub><br>(MHz) | F <sub>L</sub> Limit<br>(MHz) | F <sub>H</sub> Limit<br>(MHz) |
| -30                                                                 | 3.70                                 | 1710.184                | 1710                    | 1754.820                      | 1755                          |
| -20                                                                 |                                      | 1710.189                | 1710                    | 1754.833                      | 1755                          |
| -10                                                                 |                                      | 1710.179                | 1710                    | 1754.830                      | 1755                          |
| 0                                                                   |                                      | 1710.140                | 1710                    | 1754.811                      | 1755                          |
| 10                                                                  |                                      | 1710.158                | 1710                    | 1754.809                      | 1755                          |
| 20                                                                  |                                      | 1710.148                | 1710                    | 1754.846                      | 1755                          |
| 30                                                                  |                                      | 1710.174                | 1710                    | 1754.810                      | 1755                          |
| 40                                                                  |                                      | 1710.170                | 1710                    | 1754.821                      | 1755                          |
| 50                                                                  |                                      | 1710.181                | 1710                    | 1754.820                      | 1755                          |
| 20                                                                  | 3.15                                 | 1710.169                | 1710                    | 1754.843                      | 1755                          |
|                                                                     | 4.26                                 | 1710.151                | 1710                    | 1754.830                      | 1755                          |

**Band 5:**

| 10.0 MHz Middle Channel, $f_o = 836.5\text{MHz}$ |                               |                      |                       |             |
|--------------------------------------------------|-------------------------------|----------------------|-----------------------|-------------|
| Temperature (°C)                                 | Voltage Supplied ( $V_{DC}$ ) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| -30                                              | 3.70                          | -1.64                | -0.002                | 2.5         |
| -20                                              |                               | -2.12                | -0.003                | 2.5         |
| -10                                              |                               | -1.99                | -0.002                | 2.5         |
| 0                                                |                               | -2.68                | -0.003                | 2.5         |
| 10                                               |                               | -2.32                | -0.003                | 2.5         |
| 20                                               |                               | -1.87                | -0.002                | 2.5         |
| 30                                               |                               | -1.93                | -0.002                | 2.5         |
| 40                                               |                               | -2.05                | -0.002                | 2.5         |
| 50                                               |                               | -2.04                | -0.002                | 2.5         |
| 20                                               | 3.15                          | -1.78                | -0.002                | 2.5         |
|                                                  | 4.26                          | -1.67                | -0.002                | 2.5         |

**Band 12:**

| 1.4 MHz Test Channel: Lowest for Lower Edge, Highest for Upper Edge |                             |             |             |                   |                   |
|---------------------------------------------------------------------|-----------------------------|-------------|-------------|-------------------|-------------------|
| Temperature (°C)                                                    | Power Supplied ( $V_{DC}$ ) | $F_L$ (MHz) | $F_H$ (MHz) | $F_L$ Limit (MHz) | $F_H$ Limit (MHz) |
| -30                                                                 | 3.70                        | 699.133     | 699         | 715.839           | 716               |
| -20                                                                 |                             | 699.154     | 699         | 715.851           | 716               |
| -10                                                                 |                             | 699.175     | 699         | 715.848           | 716               |
| 0                                                                   |                             | 699.133     | 699         | 715.826           | 716               |
| 10                                                                  |                             | 699.142     | 699         | 715.855           | 716               |
| 20                                                                  |                             | 699.154     | 699         | 715.846           | 716               |
| 30                                                                  |                             | 699.159     | 699         | 715.824           | 716               |
| 40                                                                  |                             | 699.120     | 699         | 715.860           | 716               |
| 50                                                                  |                             | 699.162     | 699         | 715.872           | 716               |
| 20                                                                  | 3.15                        | 699.129     | 699         | 715.844           | 716               |
|                                                                     | 4.26                        | 699.136     | 699         | 715.827           | 716               |

**Band 13:**

| 5MHz Test Channel: Lowest for Lower Edge, Highest for Upper Edge |                                      |                         |                         |                               |                               |
|------------------------------------------------------------------|--------------------------------------|-------------------------|-------------------------|-------------------------------|-------------------------------|
| Temperature<br>(°C)                                              | Power Supplied<br>(V <sub>DC</sub> ) | F <sub>L</sub><br>(MHz) | F <sub>H</sub><br>(MHz) | F <sub>L</sub> Limit<br>(MHz) | F <sub>H</sub> Limit<br>(MHz) |
| -30                                                              | 3.70                                 | 777.249                 | 777                     | 786.751                       | 787                           |
| -20                                                              |                                      | 777.257                 | 777                     | 786.749                       | 787                           |
| -10                                                              |                                      | 777.230                 | 777                     | 786.771                       | 787                           |
| 0                                                                |                                      | 777.261                 | 777                     | 786.735                       | 787                           |
| 10                                                               |                                      | 777.239                 | 777                     | 786.740                       | 787                           |
| 20                                                               |                                      | 777.240                 | 777                     | 786.760                       | 787                           |
| 30                                                               |                                      | 777.272                 | 777                     | 786.759                       | 787                           |
| 40                                                               |                                      | 777.260                 | 777                     | 786.726                       | 787                           |
| 50                                                               |                                      | 777.251                 | 777                     | 786.768                       | 787                           |
| 20                                                               | 3.15                                 | 777.223                 | 777                     | 786.715                       | 787                           |
|                                                                  | 4.26                                 | 777.258                 | 777                     | 786.723                       | 787                           |

**16QAM:**

**Band 2:**

| 1.4 MHz Test Channel: Lowest for Lower Edge, Highest for Upper Edge |                                      |                         |                         |                               |                               |
|---------------------------------------------------------------------|--------------------------------------|-------------------------|-------------------------|-------------------------------|-------------------------------|
| Temperature<br>(°C)                                                 | Power Supplied<br>(V <sub>DC</sub> ) | F <sub>L</sub><br>(MHz) | F <sub>H</sub><br>(MHz) | F <sub>L</sub> Limit<br>(MHz) | F <sub>H</sub> Limit<br>(MHz) |
| -30                                                                 | 3.70                                 | 1850.179                | 1850                    | 1909.656                      | 1910                          |
| -20                                                                 |                                      | 1850.164                | 1850                    | 1909.646                      | 1910                          |
| -10                                                                 |                                      | 1850.131                | 1850                    | 1909.658                      | 1910                          |
| 0                                                                   |                                      | 1850.149                | 1850                    | 1909.657                      | 1910                          |
| 10                                                                  |                                      | 1850.150                | 1850                    | 1909.646                      | 1910                          |
| 20                                                                  |                                      | 1850.139                | 1850                    | 1909.681                      | 1910                          |
| 30                                                                  |                                      | 1850.140                | 1850                    | 1909.657                      | 1910                          |
| 40                                                                  |                                      | 1850.173                | 1850                    | 1909.647                      | 1910                          |
| 50                                                                  |                                      | 1850.152                | 1850                    | 1909.646                      | 1910                          |
| 20                                                                  | 3.15                                 | 1850.169                | 1850                    | 1909.648                      | 1910                          |
|                                                                     | 4.26                                 | 1850.171                | 1850                    | 1909.646                      | 1910                          |

**Band 4:**

| 1.4 MHz Test Channel: Lowest for Lower Edge, Highest for Upper Edge |                                      |                         |                         |                               |                               |
|---------------------------------------------------------------------|--------------------------------------|-------------------------|-------------------------|-------------------------------|-------------------------------|
| Temperature<br>(°C)                                                 | Power Supplied<br>(V <sub>DC</sub> ) | F <sub>L</sub><br>(MHz) | F <sub>H</sub><br>(MHz) | F <sub>L</sub> Limit<br>(MHz) | F <sub>H</sub> Limit<br>(MHz) |
| -30                                                                 | 3.70                                 | 1710.172                | 1710                    | 1754.880                      | 1755                          |
| -20                                                                 |                                      | 1710.132                | 1710                    | 1754.854                      | 1755                          |
| -10                                                                 |                                      | 1710.161                | 1710                    | 1754.845                      | 1755                          |
| 0                                                                   |                                      | 1710.170                | 1710                    | 1754.836                      | 1755                          |
| 10                                                                  |                                      | 1710.189                | 1710                    | 1754.829                      | 1755                          |
| 20                                                                  |                                      | 1710.136                | 1710                    | 1754.858                      | 1755                          |
| 30                                                                  |                                      | 1710.134                | 1710                    | 1754.864                      | 1755                          |
| 40                                                                  |                                      | 1710.190                | 1710                    | 1754.872                      | 1755                          |
| 50                                                                  |                                      | 1710.158                | 1710                    | 1754.828                      | 1755                          |
| 20                                                                  | 3.15                                 | 1710.176                | 1710                    | 1754.811                      | 1755                          |
|                                                                     | 4.26                                 | 1710.183                | 1710                    | 1754.825                      | 1755                          |

**Band 5:**

| 10.0 MHz Middle Channel, f <sub>0</sub> =836.5MHz |                                        |                            |                             |                |
|---------------------------------------------------|----------------------------------------|----------------------------|-----------------------------|----------------|
| Temperature<br>(°C)                               | Voltage Supplied<br>(V <sub>DC</sub> ) | Frequency<br>Error<br>(Hz) | Frequency<br>Error<br>(ppm) | Limit<br>(ppm) |
| -30                                               | 3.70                                   | -3.42                      | -0.004                      | 2.5            |
| -20                                               |                                        | -2.31                      | -0.003                      | 2.5            |
| -10                                               |                                        | -2.62                      | -0.003                      | 2.5            |
| 0                                                 |                                        | -1.99                      | -0.002                      | 2.5            |
| 10                                                |                                        | -2.09                      | -0.002                      | 2.5            |
| 20                                                |                                        | -2.64                      | -0.003                      | 2.5            |
| 30                                                |                                        | -2.71                      | -0.003                      | 2.5            |
| 40                                                |                                        | -2.62                      | -0.003                      | 2.5            |
| 50                                                |                                        | -2.57                      | -0.003                      | 2.5            |
| 20                                                | 3.15                                   | -2.91                      | -0.003                      | 2.5            |
|                                                   | 4.26                                   | -2.82                      | -0.003                      | 2.5            |

**Band 12:**

| 10MHz Test Channel: Lowest for Lower Edge, Highest for Upper Edge |                                      |                         |                         |                               |                               |
|-------------------------------------------------------------------|--------------------------------------|-------------------------|-------------------------|-------------------------------|-------------------------------|
| Temperature<br>(°C)                                               | Power Supplied<br>(V <sub>DC</sub> ) | F <sub>L</sub><br>(MHz) | F <sub>H</sub><br>(MHz) | F <sub>L</sub> Limit<br>(MHz) | F <sub>H</sub> Limit<br>(MHz) |
| -30                                                               | 3.70                                 | 699.117                 | 699                     | 715.859                       | 716                           |
| -20                                                               |                                      | 699.129                 | 699                     | 715.878                       | 716                           |
| -10                                                               |                                      | 699.155                 | 699                     | 715.849                       | 716                           |
| 0                                                                 |                                      | 699.151                 | 699                     | 715.881                       | 716                           |
| 10                                                                |                                      | 699.171                 | 699                     | 715.853                       | 716                           |
| 20                                                                |                                      | 699.142                 | 699                     | 715.852                       | 716                           |
| 30                                                                |                                      | 699.136                 | 699                     | 715.862                       | 716                           |
| 40                                                                |                                      | 699.121                 | 699                     | 715.873                       | 716                           |
| 50                                                                |                                      | 699.146                 | 699                     | 715.865                       | 716                           |
| 20                                                                | 3.15                                 | 699.162                 | 699                     | 715.892                       | 716                           |
|                                                                   | 4.26                                 | 699.172                 | 699                     | 715.844                       | 716                           |

**Band 13:**

| 5MHz Test Channel: Lowest for Lower Edge, Highest for Upper Edge |                                      |                         |                         |                               |                               |
|------------------------------------------------------------------|--------------------------------------|-------------------------|-------------------------|-------------------------------|-------------------------------|
| Temperature<br>(°C)                                              | Power Supplied<br>(V <sub>DC</sub> ) | F <sub>L</sub><br>(MHz) | F <sub>H</sub><br>(MHz) | F <sub>L</sub> Limit<br>(MHz) | F <sub>H</sub> Limit<br>(MHz) |
| -30                                                              | 3.70                                 | 777.258                 | 777                     | 786.770                       | 787                           |
| -20                                                              |                                      | 777.236                 | 777                     | 786.749                       | 787                           |
| -10                                                              |                                      | 777.211                 | 777                     | 786.797                       | 787                           |
| 0                                                                |                                      | 777.243                 | 777                     | 786.782                       | 787                           |
| 10                                                               |                                      | 777.200                 | 777                     | 786.759                       | 787                           |
| 20                                                               |                                      | 777.220                 | 777                     | 786.760                       | 787                           |
| 30                                                               |                                      | 777.204                 | 777                     | 786.735                       | 787                           |
| 40                                                               |                                      | 777.258                 | 777                     | 786.782                       | 787                           |
| 50                                                               |                                      | 777.229                 | 777                     | 786.735                       | 787                           |
| 20                                                               | 3.15                                 | 777.256                 | 777                     | 786.706                       | 787                           |
|                                                                  | 4.26                                 | 777.272                 | 777                     | 786.734                       | 787                           |

### 3.4 Radiated Spurious emission Test Data

|                               |                                                                  |                 |            |
|-------------------------------|------------------------------------------------------------------|-----------------|------------|
| <b>Test Date:</b>             | 2024-06-11                                                       | <b>Test By:</b> | Bard Huang |
| <b>Environment condition:</b> | Temperature: 23°C; Relative Humidity:65%; ATM Pressure: 100.2kPa |                 |            |

| Frequency (MHz)           | Reading level (dBμV) | Polar (H/V) | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) | EIRP CF | Corrected Reading (dBm) | Limit (dBm) | Margin (dB) | Remark |
|---------------------------|----------------------|-------------|-------------------------|------------------------------|---------|-------------------------|-------------|-------------|--------|
| LTE Band 2 (30MHz-20GHz)  |                      |             |                         |                              |         |                         |             |             |        |
| Low Channel(1850.7MHz)    |                      |             |                         |                              |         |                         |             |             |        |
| 3701.400                  | 59.60                | horizontal  | -2.57                   | 57.03                        | -95.2   | -38.17                  | -13         | -25.17      | Peak   |
| 3701.400                  | 58.25                | vertical    | -2.57                   | 55.68                        | -95.2   | -39.52                  | -13         | -26.52      | Peak   |
| Middle Channel(1880MHz)   |                      |             |                         |                              |         |                         |             |             |        |
| 3760.000                  | 61.38                | horizontal  | -2.69                   | 58.69                        | -95.2   | -36.51                  | -13         | -23.51      | Peak   |
| 3760.000                  | 61.16                | vertical    | -2.69                   | 58.47                        | -95.2   | -36.73                  | -13         | -23.73      | Peak   |
| High Channel(1909.3MHz)   |                      |             |                         |                              |         |                         |             |             |        |
| 3818.600                  | 66.15                | horizontal  | -2.78                   | 63.37                        | -95.2   | -31.83                  | -13         | -18.83      | Peak   |
| 3818.600                  | 63.95                | vertical    | -2.78                   | 61.17                        | -95.2   | -34.03                  | -13         | -21.03      | Peak   |
| LTE Band 4 (30MHz-20GHz)  |                      |             |                         |                              |         |                         |             |             |        |
| Low Channel(1710.7MHz)    |                      |             |                         |                              |         |                         |             |             |        |
| 3421.400                  | 58.50                | horizontal  | -2.63                   | 55.87                        | -95.2   | -39.33                  | -13         | -26.33      | Peak   |
| 3421.400                  | 59.19                | vertical    | -2.63                   | 56.56                        | -95.2   | -38.64                  | -13         | -25.64      | Peak   |
| Middle Channel(1732.5MHz) |                      |             |                         |                              |         |                         |             |             |        |
| 3465.000                  | 58.05                | horizontal  | -2.68                   | 55.37                        | -95.2   | -39.83                  | -13         | -26.83      | Peak   |
| 3465.000                  | 62.21                | vertical    | -2.68                   | 59.53                        | -95.2   | -35.67                  | -13         | -22.67      | Peak   |
| High Channel(1754.3MHz)   |                      |             |                         |                              |         |                         |             |             |        |
| 3508.600                  | 66.75                | horizontal  | -2.71                   | 64.04                        | -95.2   | -31.16                  | -13         | -18.16      | Peak   |
| 3508.600                  | 64.82                | vertical    | -2.71                   | 62.11                        | -95.2   | -33.09                  | -13         | -20.09      | Peak   |
| LTE Band 5 (30MHz-10GHz)  |                      |             |                         |                              |         |                         |             |             |        |
| Low Channel(824.7MHz)     |                      |             |                         |                              |         |                         |             |             |        |
| 1649.400                  | 65.91                | horizontal  | -3.32                   | 62.59                        | -95.2   | -32.61                  | -13         | -19.61      | Peak   |
| 1649.400                  | 62.56                | vertical    | -3.32                   | 59.24                        | -95.2   | -35.96                  | -13         | -22.96      | Peak   |
| Middle Channel(836.5MHz)  |                      |             |                         |                              |         |                         |             |             |        |
| 1673.000                  | 62.76                | horizontal  | -3.19                   | 59.57                        | -95.2   | -35.63                  | -13         | -22.63      | Peak   |

|                           |       |            |       |       |       |        |     |        |      |
|---------------------------|-------|------------|-------|-------|-------|--------|-----|--------|------|
| 1673.000                  | 63.67 | vertical   | -3.19 | 60.48 | -95.2 | -34.72 | -13 | -21.72 | Peak |
| High Channel(848.3MHz)    |       |            |       |       |       |        |     |        |      |
| 1696.600                  | 68.15 | horizontal | -3.07 | 65.08 | -95.2 | -30.12 | -13 | -17.12 | Peak |
| 1696.600                  | 66.57 | vertical   | -3.07 | 63.5  | -95.2 | -31.7  | -13 | -18.7  | Peak |
| LTE Band 12 (30MHz-10GHz) |       |            |       |       |       |        |     |        |      |
| Low Channel(699.7MHz)     |       |            |       |       |       |        |     |        |      |
| 1399.400                  | 65.09 | horizontal | -4.66 | 60.43 | -95.2 | -34.77 | -13 | -21.77 | Peak |
| 1399.400                  | 61.34 | vertical   | -4.66 | 56.68 | -95.2 | -38.52 | -13 | -25.52 | Peak |
| Middle Channel(707.5MHz)  |       |            |       |       |       |        |     |        |      |
| 1415.000                  | 48.29 | horizontal | -4.58 | 43.71 | -95.2 | -51.49 | -13 | -38.49 | Peak |
| 1415.000                  | 49.12 | vertical   | -4.58 | 44.54 | -95.2 | -50.66 | -13 | -37.66 | Peak |
| High Channel(715.3MHz)    |       |            |       |       |       |        |     |        |      |
| 1430.600                  | 48.09 | horizontal | -4.51 | 43.58 | -95.2 | -51.62 | -13 | -38.62 | Peak |
| 1430.600                  | 48.34 | vertical   | -4.51 | 43.83 | -95.2 | -51.37 | -13 | -38.37 | Peak |
| LTE Band 13 (30MHz-10GHz) |       |            |       |       |       |        |     |        |      |
| Low Channel(779.5MHz)     |       |            |       |       |       |        |     |        |      |
| 1559.000                  | 58.29 | horizontal | -3.99 | 54.3  | -95.2 | -40.9  | -40 | -0.9   | Peak |
| 1559.000                  | 56.09 | vertical   | -3.99 | 52.1  | -95.2 | -43.1  | -40 | -3.1   | Peak |
| Middle Channel(782MHz)    |       |            |       |       |       |        |     |        |      |
| 1564.000                  | 57.93 | horizontal | -3.96 | 53.97 | -95.2 | -41.23 | -40 | -1.23  | Peak |
| 1564.000                  | 55.31 | vertical   | -3.96 | 51.35 | -95.2 | -43.85 | -40 | -3.85  | Peak |
| High Channel(784.5MHz)    |       |            |       |       |       |        |     |        |      |
| 1569.000                  | 58.36 | horizontal | -3.92 | 54.44 | -95.2 | -40.76 | -40 | -0.76  | Peak |
| 1569.000                  | 55.73 | vertical   | -3.92 | 51.81 | -95.2 | -43.39 | -40 | -3.39  | Peak |

Remark:

Corrected Amplitude= Reading level + corrected Factor

Corrected Factor = Antenna factor + Cable loss – Amplifier gain

Margin = Result – Limit

According to ANSI C63.26-2.15 section 5.2.7:

$EIRP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8$ ; where D is the measurement distance (in the far field region) in m.

Test was performed on 3meters distance, so

Result = Corrected Amplitude +  $20\log(3) - 104.8$

= Corrected Amplitude - 95.2

The emission levels of other frequencies that were lower than the limit 20dB, not show in test report.

## 4 Test Setup Photo

Please refer to the attachment 2405T48460EC Test Setup photo.

## 5 E.U.T Photo

Please refer to the attachment 2405T48460E External photo and 2405T48460E Internal photo.

**---End of Report---**