

# FCC TEST REPORT

## (PART 27)

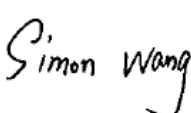
|            |                                                                                               |
|------------|-----------------------------------------------------------------------------------------------|
| Applicant: | Xiaomi Communications Co., Ltd.                                                               |
| Address:   | #019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085 |

|                           |                                                                                               |
|---------------------------|-----------------------------------------------------------------------------------------------|
| Manufacturer or Supplier: | Xiaomi Communications Co., Ltd.                                                               |
| Address:                  | #019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085 |
| Product:                  | Mobile Phone                                                                                  |
| Brand Name:               | Redmi                                                                                         |
| Model Name:               | 2409BRN2CL                                                                                    |
| FCC ID:                   | 2AFZZRN2CL                                                                                    |
| Date of tests:            | May. 11, 2024 ~ Jul. 05, 2024                                                                 |

The tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 27**    ☒ **ANSI/TIA/EIA-603-D**  
☒ **FCC Part 2**    ☒ **ANSI/TIA/EIA-603-E**    ☒ **ANSI C63.26-2015**

**CONCLUSION:** The submitted sample was found to COMPLY with the test requirement

|                                                                                                            |                                                                                                             |
|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Prepared by Simon Wang<br>Engineer / Mobile Department                                                     | Approved by Luke Lu<br>Manager / Mobile Department                                                          |
| <br>Date: Jul. 05, 2024 | <br>Date: Jul. 05, 2024 |

This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/> and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.

## TABLE OF CONTENTS

|                                                                |           |
|----------------------------------------------------------------|-----------|
| <b>RELEASE CONTROL RECORD .....</b>                            | <b>4</b>  |
| <b>1 SUMMARY OF TEST RESULTS .....</b>                         | <b>5</b>  |
| 1.1 MEASUREMENT UNCERTAINTY .....                              | 6         |
| 1.2 TEST SITE AND INSTRUMENTS .....                            | 7         |
| <b>2 GENERAL INFORMATION .....</b>                             | <b>8</b>  |
| 2.1 GENERAL DESCRIPTION OF EUT .....                           | 8         |
| 2.2 CONFIGURATION OF SYSTEM UNDER TEST .....                   | 11        |
| 2.3 DESCRIPTION OF SUPPORT UNITS .....                         | 12        |
| 2.4 TEST ITEM AND TEST CONFIGURATION .....                     | 12        |
| 2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS .....             | 16        |
| <b>3 TEST TYPES AND RESULTS .....</b>                          | <b>17</b> |
| 3.1 OUTPUT POWER MEASUREMENT .....                             | 17        |
| 3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT .....                 | 17        |
| 3.1.2 TEST PROCEDURES .....                                    | 17        |
| 3.1.3 TEST SETUP .....                                         | 18        |
| 3.1.4 TEST RESULTS .....                                       | 19        |
| 3.2 FREQUENCY STABILITY MEASUREMENT .....                      | 45        |
| 3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT .....          | 45        |
| 3.2.2 TEST PROCEDURE .....                                     | 45        |
| 3.2.3 TEST SETUP .....                                         | 45        |
| 3.2.4 TEST RESULTS .....                                       | 46        |
| 3.3 OCCUPIED BANDWIDTH MEASUREMENT .....                       | 47        |
| 3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT .....           | 47        |
| 3.3.2 TEST SETUP .....                                         | 47        |
| 3.3.3 TEST PROCEDURES .....                                    | 47        |
| 3.3.4 TEST RESULTS .....                                       | 48        |
| 3.4 BAND EDGE MEASUREMENT .....                                | 49        |
| 3.4.1 LIMITS OF BAND EDGE MEASUREMENT .....                    | 49        |
| 3.4.2 TEST SETUP .....                                         | 50        |
| 3.4.3 TEST PROCEDURES .....                                    | 51        |
| 3.4.4 TEST RESULTS .....                                       | 52        |
| 3.5 CONDUCTED SPURIOUS EMISSIONS .....                         | 53        |
| 3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT ..... | 53        |
| 3.5.2 TEST PROCEDURE .....                                     | 53        |
| 3.5.3 TEST SETUP .....                                         | 53        |
| 3.5.4 TEST RESULTS .....                                       | 54        |
| 3.6 RADIATED EMISSION MEASUREMENT .....                        | 55        |
| 3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT .....            | 55        |
| 3.6.2 TEST PROCEDURES .....                                    | 55        |
| 3.6.3 DEVIATION FROM TEST STANDARD .....                       | 55        |
| 3.6.4 TEST SETUP .....                                         | 56        |
| 3.6.5 TEST RESULTS .....                                       | 58        |
| 3.7 PEAK TO AVERAGE RATIO .....                                | 86        |
| 3.7.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT .....        | 86        |
| 3.7.2 TEST SETUP .....                                         | 86        |
| 3.7.3 TEST PROCEDURES .....                                    | 86        |
| 3.7.4 TEST RESULTS .....                                       | 87        |
| <b>4 PHOTOGRAPHS OF THE TEST CONFIGURATION .....</b>           | <b>88</b> |



Test Report No.: W7L-P24050014RF07

|                                                                                      |           |
|--------------------------------------------------------------------------------------|-----------|
| <b>5 INFORMATION ON THE TESTING LABORATORIES .....</b>                               | <b>89</b> |
| <b>6 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB... 90</b> |           |
| <b>7 APPENDIX .....</b>                                                              | <b>91</b> |
| WCDMA BAND4 .....                                                                    | 91        |
| LTE BAND7 .....                                                                      | 103       |
| LTE BAND13 .....                                                                     | 137       |



Test Report No.: W7L-P24050014RF07

## RELEASE CONTROL RECORD

| ISSUE NO.         | REASON FOR CHANGE | DATE ISSUED   |
|-------------------|-------------------|---------------|
| W7L-P24050014RF07 | Original release  | Jul. 05, 2024 |

# 1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

| APPLIED STANDARD: FCC PART 27 & PART 2                  |                                                                       |            |
|---------------------------------------------------------|-----------------------------------------------------------------------|------------|
| STANDARD SECTION                                        | TEST TYPE AND LIMIT                                                   | RESULT     |
| §2.1046                                                 | Conducted Output Power                                                | Compliance |
| §27.50(b)(10)                                           | Effective Radiated Power<br>(Band 13)                                 | Compliance |
| §27.50(d)(4)<br>§27.50(h)(2)                            | Equivalent Isotropically Radiated Power<br>(WCMDA Band 4)(Band 7)     | Compliance |
| §2.1055<br>§27.54                                       | Frequency Stability                                                   | Compliance |
| §2.1049                                                 | Occupied Bandwidth                                                    | Compliance |
| §2.1051<br>§27.53(c)(2)(4)<br>§27.53(h)<br>§27.53(m)(4) | Conducted Band Edge Measurements<br>(WCMDA Band 4) (Band 7) (Band 13) | Compliance |
| §2.1051<br>§27.53(c)(2)(4)<br>§27.53(h)<br>§27.53(m)(4) | Conducted Spurious Emissions<br>(WCMDA Band 4)(Band 7) (Band 13)      | Compliance |
| §2.1053<br>§27.53(c)(2)(4)<br>§27.53(h)<br>§27.53(m)(4) | Radiated Spurious Emissions<br>(WCMDA Band 4)(Band 7) (Band 13)       | Compliance |
| NA                                                      | Peak to average ratio                                                 | Compliance |

## 1.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

| MEASUREMENT                                      | UNCERTAINTY           |
|--------------------------------------------------|-----------------------|
| Frequency Stability                              | $\pm 76.97\text{Hz}$  |
| Radiated emissions (9KHz~30MHz)                  | $\pm 2.68\text{dB}$   |
| Radiated emissions & Radiated Power (30MHz~1GHz) | $\pm 4.98\text{dB}$   |
| Radiated emissions & Radiated Power (1GHz ~6GHz) | $\pm 4.70\text{dB}$   |
| Radiated emissions (6GHz ~18GHz)                 | $\pm 4.60\text{dB}$   |
| Radiated emissions (18GHz ~40GHz)                | $\pm 4.12\text{dB}$   |
| Conducted emissions                              | $\pm 4.01\text{dB}$   |
| Occupied Channel Bandwidth                       | $\pm 43.58\text{KHz}$ |
| Conducted Output power                           | $\pm 2.06\text{dB}$   |
| Band Edge Measurements                           | $\pm 4.70\text{dB}$   |

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

## 1.2 TEST SITE AND INSTRUMENTS

| Equipment                                   | Manufacturer      | Model No.                       | Serial No.                          | Last Cal.  | Next Cal.  |
|---------------------------------------------|-------------------|---------------------------------|-------------------------------------|------------|------------|
| MXE EMI Receiver                            | KEYSIGHT          | N9038A-544                      | MY54450026                          | Mar. 28,24 | Mar. 27,25 |
| EXA Signal Analyzer                         | KEYSIGHT          | N9010A-544                      | MY54510355                          | May.10,24  | May.09,25  |
| Loop Antenna                                | Schwarzbeck       | FMZB 1519B                      | 00173                               | Sep.03,23  | Sep.02,24  |
| Bilog Antenna                               | ETS-LINDGRE<br>N  | 3143B                           | 00161965                            | Feb. 18,24 | Feb. 17,25 |
| Horn Antenna                                | ETS-LINDGRE<br>N  | 3117                            | 00168692                            | Feb. 18,24 | Feb. 17,25 |
| Horn Antenna<br>(18GHz-40GHz)               | N/A               | QWH-SL-18-40-K-<br>SG/QMS-00361 | 15433                               | Sep.04, 23 | Sep.03, 24 |
| Radio Communication<br>Analyzer             | ANRITSU           | MT8820C                         | 6201465426                          | Feb. 14,24 | Feb. 13,25 |
| Signal Pre-Amplifier                        | EMSI              | EMC 9135                        | 980249                              | May. 06,24 | May. 05,25 |
| Signal Pre-Amplifier                        | EMSI              | EMC 012645B                     | 980257                              | May.10,24  | May.09,25  |
| Signal Pre-Amplifier                        | EMSI              | EMC 184045B                     | 980259                              | Feb. 17,24 | Feb.16,25  |
| 3m<br>Semi-anechoic<br>Chamber              | ETS-LINDGRE<br>N  | 9m*6m*6m                        | Euroshieldpn-<br>CT0001143-121<br>6 | Nov. 14,23 | Nov. 13,26 |
| Test Software                               | E3                | V 9.160323                      | N/A                                 | N/A        | N/A        |
| Test Software                               | JS1120            | 3.1.36                          | N/A                                 | N/A        | N/A        |
| 10dB Attenuator                             | JFW/USA           | 50HF-010-SMA                    | 50HF-010-SMA                        | May. 06,24 | May. 05,25 |
| Power Meter                                 | Anritsu           | ML2495A                         | 1506002                             | Feb. 14,24 | Feb. 13,25 |
| Power Sensor                                | Anritsu           | MA2411B                         | 1339352                             | Feb. 14,24 | Feb. 13,25 |
| Temperature Chamber                         | ESPEC             | SH-242                          | 93000855                            | May. 06,24 | May. 05,25 |
| MXG<br>Analog Microvave<br>Signal Generator | KEYSIGHT          | N5183A                          | MY50143024                          | Feb. 14,24 | Feb. 13,25 |
| Base station R&S<br>CMW500                  | Rohde&Schwa<br>rz | CMW500                          | 153085                              | May.10,24  | May.09,25  |
| DC Source                                   | Kikusui/JP        | PMX18-5A                        | N/A                                 | Aug. 11,23 | Aug. 10,24 |

- NOTE:**
1. The calibration interval of the above test instruments is 12 months or 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
  2. The test was performed in 3m Semi-anechoic Chamber and RF Oven Room.
  3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
  4. The FCC Site Registration No. is 525120; The Designation No. is CN1171.

## 2 GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

|                              |                                                                     |                       |
|------------------------------|---------------------------------------------------------------------|-----------------------|
| <b>PRODUCT</b>               | Mobile Phone                                                        |                       |
| <b>BRAND NAME</b>            | Redmi                                                               |                       |
| <b>MODEL NAME</b>            | 2409BRN2CL                                                          |                       |
| <b>NOMINAL VOLTAGE</b>       | 5/3.6~11Vdc(adapter or host equipment)<br>3.84Vdc (Li-ion, battery) |                       |
| <b>MODULATION TECHNOLOGY</b> | <b>WCDMA IV</b>                                                     | BPSK, QPSK            |
|                              | <b>LTE</b>                                                          | QPSK, 16QAM, 64QAM    |
| <b>FREQUENCY RANGE</b>       | <b>WCDMA IV</b>                                                     | 1712.4MHz ~ 1752.6MHz |
|                              | <b>LTE Band 7<br/>Channel Bandwidth: 5MHz</b>                       | 2502.5MHz ~ 2567.5MHz |
|                              | <b>LTE Band 7<br/>Channel Bandwidth: 10MHz</b>                      | 2505MHz ~ 2565MHz     |
|                              | <b>LTE Band 7<br/>Channel Bandwidth: 15MHz</b>                      | 2507.5MHz ~ 2562.5MHz |
|                              | <b>LTE Band 7<br/>Channel Bandwidth: 20MHz</b>                      | 2510MHz ~ 2560MHz     |
|                              | <b>LTE Band 13<br/>Channel Bandwidth: 5MHz</b>                      | 779.5MHz ~ 784.5MHz   |
|                              | <b>LTE Band 13<br/>Channel Bandwidth: 10MHz</b>                     | 782MHz                |
|                              |                                                                     |                       |
| <b>MAX. EIRP POWER</b>       | <b>WCDMA IV</b>                                                     | 208.45mW              |
|                              | <b>LTE Band 7<br/>Channel Bandwidth: 5MHz</b>                       | 233.35mW              |
|                              | <b>LTE Band 7<br/>Channel Bandwidth: 10MHz</b>                      | 237.14mW              |
|                              | <b>LTE Band 7<br/>Channel Bandwidth: 15MHz</b>                      | 236.05mW              |
|                              | <b>LTE Band 7<br/>Channel Bandwidth: 20MHz</b>                      | 241.55mW              |
|                              | <b>LTE Band 13<br/>Channel Bandwidth: 5MHz</b>                      | 54.7mW                |
|                              | <b>LTE Band 13<br/>Channel Bandwidth: 10MHz</b>                     | 54.83mW               |
|                              |                                                                     |                       |
| <b>EMISSION DESIGNATOR</b>   | <b>WCDMA IV</b>                                                     | 4M17F9W               |
|                              | <b>LTE Band 7<br/>Channel Bandwidth: 5MHz</b>                       | QPSK: 4M50G7D         |
|                              |                                                                     | 16QAM: 4M51W7D        |
|                              | <b>LTE Band 7</b>                                                   | QPSK:8M99G7D          |



**BUREAU  
VERITAS**

Test Report No.: W7L-P24050014RF07

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                            | <b>Channel Bandwidth: 10MHz</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 16QAM: 9M00W7D |
|                            | <b>LTE Band 7</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | QPSK: 13M5G7D  |
|                            | <b>Channel Bandwidth: 15MHz</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 16QAM: 13M5W7D |
|                            | <b>LTE Band 7</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | QPSK: 18M0G7D  |
|                            | <b>Channel Bandwidth: 20MHz</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 16QAM: 17M9W7D |
|                            | <b>LTE Band 13</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | QPSK: 4M54G7D  |
|                            | <b>Channel Bandwidth: 5MHz</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 16QAM: 4M52W7D |
|                            | <b>LTE Band 13</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | QPSK: 9M03G7D  |
|                            | <b>Channel Bandwidth: 10MHz</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 16QAM: 9M00W7D |
| <b>ANTENNA TYPE</b>        | ANT 0(UP):<br>PIFA Antenna with -1.5dBi gain for WCDMA IV<br>PIFA Antenna with -1dBi gain for LTE7<br>PIFA Antenna with -6.5dBi gain for LTE13<br>ANT 1(DOWN):<br>PIFA Antenna with -1.5dBi gain for WCDMA IV<br>PIFA Antenna with -0.5dBi gain for LTE7<br>PIFA Antenna with -5dBi gain for LTE13                                                                                                                                                                                                                                                           |                |
| <b>HW VERSION</b>          | 135100C3N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |
| <b>SW VERSION</b>          | Xiaomi HyperOS 1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                |
| <b>IMEI</b>                | 867957070066520                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |
| <b>I/O PORTS</b>           | Refer to user's manual                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                |
| <b>CABLE SUPPLIED</b>      | USB cable1: non-shielded cable, with w/o ferrite core, 1.0 meter<br>USB cable2: non-shielded cable, with w/o ferrite core, 1.0 meter<br>USB cable3: non-shielded cable, with w/o ferrite core, 1.0 meter<br>USB cable4: non-shielded cable, with w/o ferrite core, 1.0 meter<br>USB cable5: non-shielded cable, with w/o ferrite core, 1.0 meter<br>USB cable6: non-shielded cable, with w/o ferrite core, 1.0 meter<br>USB cable7: non-shielded cable, with w/o ferrite core, 1.0 meter<br>USB cable8: non-shielded cable, with w/o ferrite core, 1.0 meter |                |
| <b>EXTREME TEMPERATURE</b> | 0-40 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                |
| <b>EXTREME VOLTAGE</b>     | 3.6V - 4.4V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |

**NOTE:**

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- Physically, the EUT provides two completed transmitter and two receiver.

| MODULATION MODE | TX FUNCTION |
|-----------------|-------------|
| LTE             | 2TX/2RX     |

- For the test results, the EUT had been tested with all conditions. But only the worst case was shown in the test report.

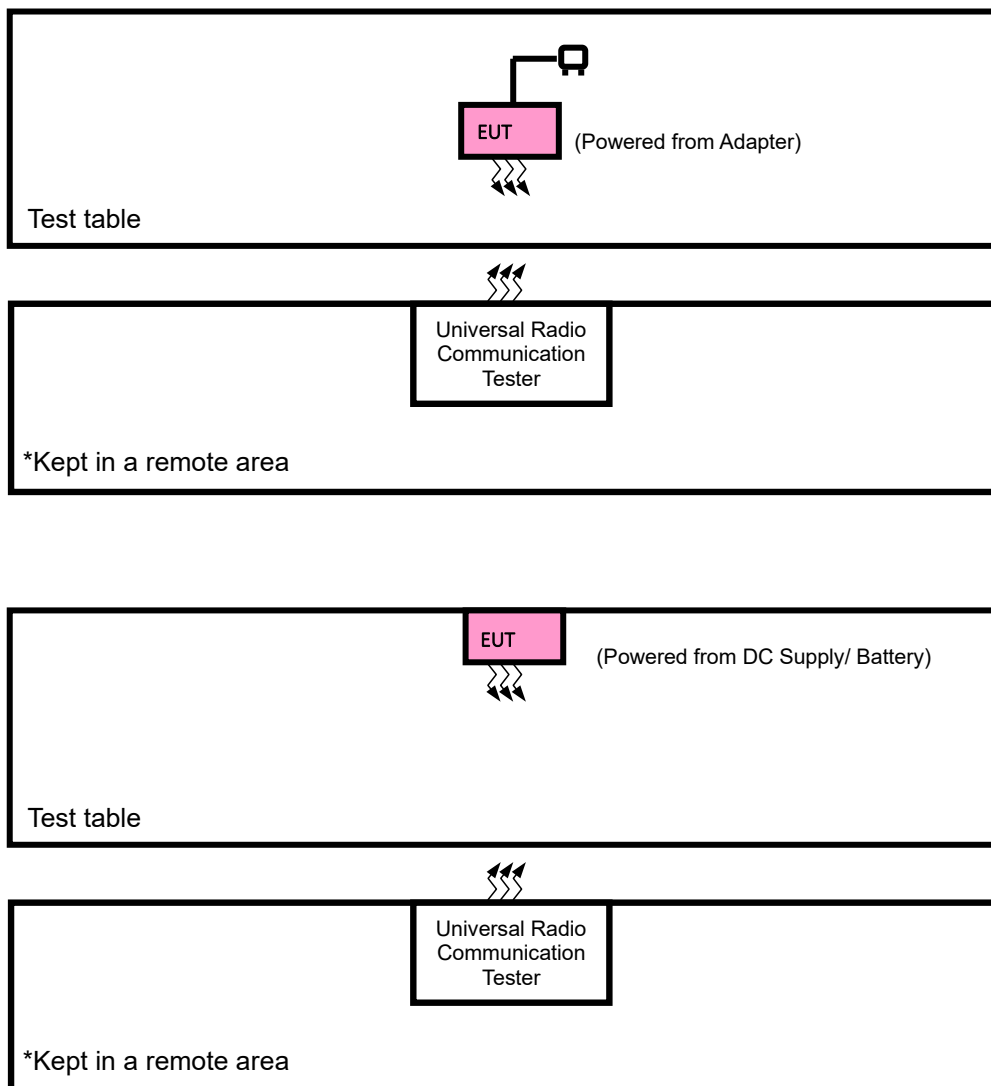


**Test Report No.: W7L-P24050014RF07**

4. Antenna gain and EUT conducted cable loss are provided by the customer, and the laboratory will record the results based on these items that involve these two parameters.

## 2.2 CONFIGURATION OF SYSTEM UNDER TEST

### FOR RADIATION EMISSION TEST



## 2.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| NO. | PRODUCT   | BRAND    | MODEL NO. | SERIAL NO. | FCC ID |
|-----|-----------|----------|-----------|------------|--------|
| 1   | DC source | LONG WEI | PS-6403D  | 010934269  | N/A    |

| NO. | SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS |
|-----|-----------------------------------------------------|
| 1   | DC Line: Unshielded, Detachable 1.8m                |

## 2.4 TEST ITEM AND TEST CONFIGURATION

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports. The worst case was found when positioned on Y-plane for EIRP and X-axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

| EUT CONFIGURE MODE | DESCRIPTION                                      |
|--------------------|--------------------------------------------------|
| A                  | EUT + Adapter + USB Cable with WCDMA or LTE link |
| B                  | EUT + DC source with GSM or WCDMA or LTE link    |

### WCDMA MODE

| EUT CONFIGURE MODE | TEST ITEM             | AVAILABLE CHANNEL | TESTED CHANNEL   | MODE  |
|--------------------|-----------------------|-------------------|------------------|-------|
| A                  | EIRP                  | 1312 to 1513      | 1312, 1413, 1513 | WCDMA |
| B                  | FREQUENCY STABILITY   | 1312 to 1513      | 1312, 1413, 1513 | WCDMA |
| A                  | OCCUPIED BANDWIDTH    | 1312 to 1513      | 1312, 1413, 1513 | WCDMA |
| A                  | BAND EDGE             | 1312 to 1513      | 1312, 1513       | WCDMA |
| A                  | PEAK TO AVERAGE RATIO | 1312 to 1513      | 1312, 1413, 1513 | WCDMA |
| A                  | CONDUCTED EMISSION    | 1312 to 1513      | 1312, 1413, 1513 | WCDMA |
| A                  | RADIATED EMISSION     | 1312 to 1513      | 1312, 1413, 1513 | WCDMA |

**LTE BAND 7 MODE**

| EUT CONFIGURE MODE | TEST ITEM             | AVAILABLE CHANNEL | TESTED CHANNEL      | CHANNEL BANDWIDT H | MODULATION         | MODE                                        |
|--------------------|-----------------------|-------------------|---------------------|--------------------|--------------------|---------------------------------------------|
| <b>A</b>           | EIRP                  | 20775 to 21425    | 20775, 21100, 21425 | 5MHz               | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset                          |
|                    |                       | 20800 to 21400    | 20800, 21100, 21400 | 10MHz              | QPSK, 16QAM, 64QAM | 1 RB / 0RB Offset                           |
|                    |                       | 20825 to 21375    | 20825, 21100, 21375 | 15MHz              | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset                          |
|                    |                       | 20850 to 21350    | 20850, 21100, 21350 | 20MHz              | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset                          |
| <b>B</b>           | FREQUENCY STABILITY   | 20850 to 21350    | 20850, 21100, 21350 | 20MHz              | QPSK               | 100 RB / 0 RB Offset                        |
| <b>A</b>           | OCCUPIED BANDWIDTH    | 20775 to 21425    | 20775, 21100, 21425 | 5MHz               | QPSK, 16QAM        | 25 RB / 0 RB Offset                         |
|                    |                       | 20800 to 21400    | 20800, 21100, 21400 | 10MHz              | QPSK, 16QAM        | 50 RB / 0 RB Offset                         |
|                    |                       | 20825 to 21375    | 20825, 21100, 21375 | 15MHz              | QPSK, 16QAM        | 75 RB / 0 RB Offset                         |
|                    |                       | 20850 to 21350    | 20850, 21100, 21350 | 20MHz              | QPSK, 16QAM        | 100 RB / 0 RB Offset                        |
| <b>A</b>           | PEAK TO AVERAGE RATIO | 20850 to 21350    | 20850, 21100, 21350 | 20MHz              | QPSK, 16QAM        | 1 RB / 0 RB Offset<br>100 RB / 0 RB Offset  |
| <b>A</b>           | BAND EDGE             | 20775 to 21425    | 20775               | 5MHz               | QPSK, 16QAM        | 1 RB / 0 RB Offset<br>25 RB / 0 RB Offset   |
|                    |                       |                   | 21425               | 5MHz               | QPSK, 16QAM        | 1 RB / 24 RB Offset<br>25 RB / 0 RB Offset  |
|                    |                       | 20800 to 21400    | 20800               | 10MHz              | QPSK, 16QAM        | 1 RB / 0 RB Offset<br>50 RB / 0 RB Offset   |
|                    |                       |                   | 21400               | 10MHz              | QPSK, 16QAM        | 1 RB / 49 RB Offset<br>50 RB / 0 RB Offset  |
|                    |                       | 20825 to 21375    | 20825               | 15MHz              | QPSK, 16QAM        | 1 RB / 0 RB Offset<br>75 RB / 0 RB Offset   |
|                    |                       |                   | 21375               | 15MHz              | QPSK, 16QAM        | 1 RB / 74 RB Offset<br>75 RB / 0 RB Offset  |
|                    |                       | 20850 to 21350    | 20850               | 20MHz              | QPSK, 16QAM        | 1 RB / 0 RB Offset<br>100 RB / 0 RB Offset  |
|                    |                       |                   | 21350               | 20MHz              | QPSK, 16QAM        | 1 RB / 99 RB Offset<br>100 RB / 0 RB Offset |
|                    |                       | 20775 to 21425    | 20775, 21100, 21425 | 5MHz               | QPSK               | 1 RB / 0 RB Offset                          |
|                    |                       |                   | 20800, 21100, 21400 | 10MHz              | QPSK               | 1 RB / 0RB Offset                           |
|                    |                       |                   | 20825, 21100, 21375 | 15MHz              | QPSK               | 1 RB / 0 RB Offset                          |
|                    |                       |                   | 20850, 21100, 21350 | 20MHz              | QPSK               | 1 RB / 0 RB Offset                          |
| <b>A</b>           | CONDCUDE TED EMISSION | 20775 to 21425    | 20775, 21100, 21425 | 5MHz               | QPSK               | 1 RB / 0 RB Offset                          |
|                    |                       | 20800 to 21400    | 20800, 21100, 21400 | 10MHz              | QPSK               | 1 RB / 0RB Offset                           |
|                    |                       | 20825 to 21375    | 20825, 21100, 21375 | 15MHz              | QPSK               | 1 RB / 0 RB Offset                          |
|                    |                       | 20850 to 21350    | 20850, 21100, 21350 | 20MHz              | QPSK               | 1 RB / 0 RB Offset                          |
| <b>A</b>           | RADIATED EMISSION     | 20775 to 21425    | 21100               | 5MHz               | QPSK               | 1 RB / 0 RB Offset                          |
|                    |                       | 20800 to 21400    | 21100               | 10MHz              | QPSK               | 1 RB / 0 RB Offset                          |
|                    |                       | 20825 to 21375    | 20825, 21100, 21375 | 15MHz              | QPSK               | 1 RB / 0 RB Offset                          |
|                    |                       | 20850 to 21350    | 21100               | 20MHz              | QPSK               | 1 RB / 0 RB Offset                          |

**Note:** This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

**LTE BAND 13 MODE**

| EUT<br>CONFIGURE<br>MODE | TEST ITEM                | AVAILABLE<br>CHANNEL | TESTED CHANNEL      | CHANNEL<br>BANDWIDTH | MODULATION         | MODE                                       |
|--------------------------|--------------------------|----------------------|---------------------|----------------------|--------------------|--------------------------------------------|
| <b>A</b>                 | ERP                      | 23205 to 23255       | 23205, 23230, 23255 | 5MHz                 | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset                         |
|                          |                          | 23230                | 23230               | 10MHz                | QPSK, 16QAM, 64QAM | 1 RB / 0 RB Offset                         |
| <b>B</b>                 | FREQUENCY<br>STABILITY   | 23230                | 23230               | 10MHz                | QPSK, 16QAM        | 50 RB / 0 RB Offset                        |
| <b>A</b>                 | OCCUPIED<br>BANDWIDTH    | 23205 to 23255       | 23205, 23230, 23255 | 5MHz                 | QPSK, 16QAM        | 25 RB / 0 RB Offset                        |
|                          |                          | 23230                | 23230               | 10MHz                | QPSK, 16QAM        | 50 RB / 0 RB Offset                        |
| <b>A</b>                 | PEAK TO<br>AVERAGE RATIO | 23230                | 23230               | 10MHz                | QPSK, 16QAM        | 1 RB / 0 RB Offset<br>50 RB / 0 RB Offset  |
| <b>A</b>                 | BAND EDGE                | 23205 to 23255       | 23205               | 5MHz                 | QPSK, 16QAM        | 1 RB / 0 RB Offset<br>25 RB / 0 RB Offset  |
|                          |                          |                      |                     |                      |                    | 1 RB / 24 RB Offset<br>25 RB / 0 RB Offset |
|                          |                          |                      | 23255               | 5MHz                 | QPSK, 16QAM        | 1 RB / 0 RB Offset<br>1 RB / 49 RB Offset  |
|                          |                          |                      |                     |                      |                    | 50 RB / 0 RB Offset                        |
|                          |                          | 23230                | 23230               | 10MHz                | QPSK, 16QAM        | 1 RB / 0 RB Offset<br>1 RB / 49 RB Offset  |
|                          |                          |                      |                     |                      |                    | 50 RB / 0 RB Offset                        |
| <b>A</b>                 | CONDUCTED<br>EMISSION    | 23205 to 23255       | 23205, 23230, 23255 | 5MHz                 | QPSK, 16QAM        | 1 RB / 0 RB Offset                         |
|                          |                          | 23230                | 23230               | 10MHz                | QPSK, 16QAM        | 1 RB / 0 RB Offset                         |
| <b>A</b>                 | RADIATED<br>EMISSION     | 23205 to 23255       | 23230               | 5MHz                 | QPSK               | 1 RB / 0 RB Offset                         |
|                          |                          | 23230                | 23230               | 10MHz                | QPSK               | 1 RB / 0 RB Offset                         |

**Note:** This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

**TEST CONDITION:**

| TEST ITEM             | ENVIRONMENTAL CONDITIONS | INPUT POWER                  | TESTED BY |
|-----------------------|--------------------------|------------------------------|-----------|
| ERP&EIRP              | 23deg. C, 70%RH          | DC 5/3.6~11V By Adapter      | Jace Hu   |
| FREQUENCY STABILITY   | See Note                 | DC 3.6/3.84/4.4 By DC Source | James Fu  |
| OCCUPIED BANDWIDTH    | 23deg. C, 70%RH          | DC 5/3.6~11V By Adapter      | James Fu  |
| BAND EDGE             | 23deg. C, 70%RH          | DC 5/3.6~11V By Adapter      | James Fu  |
| CONDCUDED EMISSION    | 23deg. C, 70%RH          | DC 5/3.6~11V By Adapter      | James Fu  |
| RADIATED EMISSION     | 23deg. C, 70%RH          | DC 5/3.6~11V By Adapter      | Jace Hu   |
| PEAK TO AVERAGE RATIO | 23deg. C, 70%RH          | DC 5/3.6~11V By Adapter      | James Fu  |



Test Report No.: W7L-P24050014RF07

## **2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS**

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC 47 CFR Part 2**

**FCC 47 CFR Part 27**

**KDB 971168 D01 Power Meas License Digital Systems v03r01**

**ANSI/TIA/EIA-603-D**

**ANSI/TIA/EIA-603-E**

**ANSI C63.26-2015**

**NOTE:** All test items have been performed and recorded as per the above standards.

### 3 TEST TYPES AND RESULTS

#### 3.1 OUTPUT POWER MEASUREMENT

##### 3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

The radiated peak output power shall be according to the specific rule Part 27.50(h)(2) that “User stations are limited to 2 watts” and 27.50(i) specific that “Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.”

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

According to the specific rule Part 27.50(b)(10) Fixed, mobile, and Portable stations (hand-held devices) transmitting in the 698-746 MHz, 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

##### 3.1.2 TEST PROCEDURES

###### EIRP MEASUREMENT:

Per KDB 971168 D01 Power Meas License Digital Systems v03r01 or subclause 5.2.5.5 of ANSI C63.26-2015, the relevant equation for determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_T - L_C$$

Where:

ERP or EIRP = effective radiated power or equivalent isotropically radiated power, respectively  
(expressed in the same units as  $P_{\text{Meas}}$ , typically dBW or dBm).

$P_{\text{Meas}}$  = measured transmitter output power or PSD, in dBm or dBW.

$G_T$  = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP).

$L_C$  = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

###### CONDUCTED POWER MEASUREMENT:

- The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
- Set the EUT to transmit under low, middle, and high channel and record the power level shown on simulator.

### 3.1.3 TEST SETUP

#### CONDUCTED POWER MEASUREMENT:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

### 3.1.4 TEST RESULTS

#### CONDUCTED OUTPUT POWER (dBm)

ANT0(UP):

| Band               | WCDMA IV |        |              |
|--------------------|----------|--------|--------------|
| Channel            | 1312     | 1413   | 1513         |
| Frequency (MHz)    | 1712.4   | 1732.6 | 1752.6       |
| RMC 12.2K          | 24.67    | 24.76  | <b>24.79</b> |
| HSDPA Subtest-1    | 23.85    | 23.86  | 23.92        |
| HSDPA Subtest-2    | 23.78    | 23.90  | 23.94        |
| HSDPA Subtest-3    | 23.34    | 23.35  | 23.40        |
| HSDPA Subtest-4    | 23.36    | 23.43  | 23.43        |
| DC-HSDPA Subtest-1 | 23.79    | 23.94  | 23.98        |
| DC-HSDPA Subtest-2 | 23.85    | 23.88  | 23.91        |
| DC-HSDPA Subtest-3 | 23.33    | 23.38  | 23.48        |
| DC-HSDPA Subtest-4 | 23.32    | 23.40  | 23.47        |
| HSUPA Subtest-1    | 22.05    | 22.07  | 22.10        |
| HSUPA Subtest-2    | 21.69    | 21.76  | 21.86        |
| HSUPA Subtest-3    | 22.60    | 22.68  | 22.76        |
| HSUPA Subtest-4    | 21.36    | 21.39  | 21.49        |
| HSUPA Subtest-5    | 22.57    | 22.65  | 22.70        |
| HSPA+ Subtest-1    | 21.88    | 22.03  | 22.02        |

**LTE Band 7**

| Band/BW | Modulation | RB<br>Size | RB<br>Offset | Low CH<br>20775         | Mid CH<br>21100       | High CH<br>21425        |
|---------|------------|------------|--------------|-------------------------|-----------------------|-------------------------|
|         |            |            |              | Frequency<br>2502.5 MHz | Frequency<br>2535 MHz | Frequency<br>2567.5 MHz |
| 7/ 5    | QPSK       | 1          | 0            | 23.38                   | 23.19                 | 23.06                   |
|         |            | 1          | 12           | 23.70                   | 23.32                 | 23.42                   |
|         |            | 1          | 24           | 23.20                   | 23.08                 | 23.15                   |
|         |            | 12         | 0            | 22.63                   | 22.42                 | 22.27                   |
|         |            | 12         | 6            | 22.71                   | 22.40                 | 22.43                   |
|         |            | 12         | 13           | 22.60                   | 22.35                 | 22.26                   |
|         |            | 25         | 0            | 22.67                   | 22.32                 | 22.22                   |
|         | 16QAM      | 1          | 0            | 22.59                   | 22.43                 | 22.29                   |
|         |            | 1          | 12           | 22.90                   | 22.49                 | 22.62                   |
|         |            | 1          | 24           | 22.41                   | 22.20                 | 22.25                   |
|         |            | 12         | 0            | 21.59                   | 21.39                 | 21.25                   |
|         |            | 12         | 6            | 21.70                   | 21.44                 | 21.31                   |
|         |            | 12         | 13           | 21.69                   | 21.33                 | 21.15                   |
|         |            | 25         | 0            | 21.49                   | 21.35                 | 21.27                   |
|         | 64QAM      | 1          | 0            | 21.54                   | 21.22                 | 21.26                   |
|         |            | 1          | 12           | 21.85                   | 21.52                 | 21.43                   |
|         |            | 1          | 24           | 21.34                   | 21.17                 | 21.31                   |
|         |            | 12         | 0            | 20.43                   | 20.46                 | 20.20                   |
|         |            | 12         | 6            | 20.59                   | 20.30                 | 20.21                   |
|         |            | 12         | 13           | 20.57                   | 20.16                 | 20.21                   |
|         |            | 25         | 0            | 20.48                   | 20.25                 | 20.26                   |

| Band/BW | Modulation | RB<br>Size | RB<br>Offset | Low CH 20800          | Mid CH 21100          | High CH 21400         |
|---------|------------|------------|--------------|-----------------------|-----------------------|-----------------------|
|         |            |            |              | Frequency<br>2505 MHz | Frequency<br>2535 MHz | Frequency<br>2565 MHz |
| 7/ 10   | QPSK       | 1          | 0            | 23.42                 | 23.09                 | 22.97                 |
|         |            | 1          | 24           | 23.59                 | 23.39                 | 23.38                 |
|         |            | 1          | 49           | 23.17                 | 23.21                 | 23.14                 |
|         |            | 25         | 0            | 22.64                 | 22.41                 | 22.36                 |
|         |            | 25         | 12           | 22.69                 | 22.42                 | 22.30                 |
|         |            | 25         | 25           | 22.68                 | 22.26                 | 22.26                 |
|         |            | 50         | 0            | 22.57                 | 22.36                 | 22.31                 |
|         | 16QAM      | 1          | 0            | 22.64                 | 22.30                 | 22.22                 |
|         |            | 1          | 24           | 22.88                 | 22.52                 | 22.61                 |
|         |            | 1          | 49           | 22.41                 | 22.18                 | 22.14                 |
|         |            | 25         | 0            | 21.61                 | 21.47                 | 21.29                 |
|         |            | 25         | 12           | 21.57                 | 21.35                 | 21.35                 |
|         |            | 25         | 25           | 21.65                 | 21.31                 | 21.13                 |
|         |            | 50         | 0            | 21.60                 | 21.28                 | 21.22                 |
|         | 64QAM      | 1          | 0            | 21.54                 | 21.29                 | 21.30                 |
|         |            | 1          | 24           | 21.86                 | 21.46                 | 21.44                 |
|         |            | 1          | 49           | 21.33                 | 21.30                 | 21.28                 |
|         |            | 25         | 0            | 20.47                 | 20.43                 | 20.20                 |
|         |            | 25         | 12           | 20.55                 | 20.28                 | 20.28                 |
|         |            | 25         | 25           | 20.62                 | 20.17                 | 20.32                 |
|         |            | 50         | 0            | 20.55                 | 20.31                 | 20.21                 |

| Band/BW | Modulation | RB<br>Size | RB<br>Offset | Low CH<br>20825         | Mid CH<br>21100       | High CH<br>21375        |
|---------|------------|------------|--------------|-------------------------|-----------------------|-------------------------|
|         |            |            |              | Frequency<br>2507.5 MHz | Frequency<br>2535 MHz | Frequency<br>2562.5 MHz |
| 7/ 15   | QPSK       | 1          | 0            | 23.44                   | 23.14                 | 23.07                   |
|         |            | 1          | 37           | 23.62                   | 23.44                 | 23.40                   |
|         |            | 1          | 74           | 23.18                   | 22.87                 | 23.08                   |
|         |            | 36         | 0            | 22.56                   | 22.47                 | 22.34                   |
|         |            | 36         | 19           | 22.67                   | 22.40                 | 22.38                   |
|         |            | 36         | 39           | 22.58                   | 22.32                 | 22.26                   |
|         |            | 75         | 0            | 22.67                   | 22.31                 | 22.24                   |
|         | 16QAM      | 1          | 0            | 22.59                   | 22.36                 | 22.22                   |
|         |            | 1          | 37           | 22.90                   | 22.59                 | 22.58                   |
|         |            | 1          | 74           | 22.38                   | 22.18                 | 22.21                   |
|         |            | 36         | 0            | 21.47                   | 21.35                 | 21.25                   |
|         |            | 36         | 19           | 21.70                   | 21.31                 | 21.26                   |
|         |            | 36         | 39           | 21.56                   | 21.24                 | 21.19                   |
|         |            | 75         | 0            | 21.52                   | 21.39                 | 21.25                   |
|         | 64QAM      | 1          | 0            | 21.46                   | 21.26                 | 21.29                   |
|         |            | 1          | 37           | 21.86                   | 21.42                 | 21.46                   |
|         |            | 1          | 74           | 21.29                   | 21.22                 | 21.27                   |
|         |            | 36         | 0            | 20.43                   | 20.34                 | 20.22                   |
|         |            | 36         | 19           | 20.61                   | 20.37                 | 20.30                   |
|         |            | 36         | 39           | 20.63                   | 20.27                 | 20.29                   |
|         |            | 75         | 0            | 20.57                   | 20.35                 | 20.23                   |

| Band/BW | Modulation | RB<br>Size | RB<br>Offset | Low CH<br>20850       | Mid CH<br>21100       | High CH<br>21350      |
|---------|------------|------------|--------------|-----------------------|-----------------------|-----------------------|
|         |            |            |              | Frequency<br>2510 MHz | Frequency<br>2535 MHz | Frequency<br>2560 MHz |
| 7/ 20   | QPSK       | 1          | 0            | 23.48                 | 23.21                 | 23.12                 |
|         |            | 1          | 50           | <b>23.72</b>          | 23.47                 | 23.45                 |
|         |            | 1          | 99           | 23.23                 | 23.00                 | 23.09                 |
|         |            | 50         | 0            | 22.66                 | 22.51                 | 22.40                 |
|         |            | 50         | 25           | 22.73                 | 22.55                 | 22.44                 |
|         |            | 50         | 50           | 22.72                 | 22.38                 | 22.28                 |
|         |            | 100        | 0            | 22.68                 | 22.43                 | 22.33                 |
|         | 16QAM      | 1          | 0            | 22.70                 | 22.44                 | 22.32                 |
|         |            | 1          | 50           | 22.93                 | 22.64                 | 22.65                 |
|         |            | 1          | 99           | 22.51                 | 22.22                 | 22.26                 |
|         |            | 50         | 0            | 21.62                 | 21.50                 | 21.35                 |
|         |            | 50         | 25           | 21.72                 | 21.45                 | 21.40                 |
|         |            | 50         | 50           | 21.71                 | 21.36                 | 21.28                 |
|         |            | 100        | 0            | 21.64                 | 21.41                 | 21.29                 |
|         | 64QAM      | 1          | 0            | 21.55                 | 21.35                 | 21.31                 |
|         |            | 1          | 50           | 21.88                 | 21.57                 | 21.58                 |
|         |            | 1          | 99           | 21.41                 | 21.32                 | 21.35                 |
|         |            | 50         | 0            | 20.57                 | 20.47                 | 20.32                 |
|         |            | 50         | 25           | 20.70                 | 20.41                 | 20.36                 |
|         |            | 50         | 50           | 20.69                 | 20.31                 | 20.33                 |
|         |            | 100        | 0            | 20.62                 | 20.40                 | 20.35                 |

**LTE Band 13**

| Band/BW | Modulation | RB<br>Size | RB<br>Offset | Low CH<br>23205        | Mid CH<br>23230        | High CH<br>23255       |
|---------|------------|------------|--------------|------------------------|------------------------|------------------------|
|         |            |            |              | Frequency<br>779.5 MHz | Frequency<br>782.0 MHz | Frequency<br>784.5 MHz |
| 13/ 5   | QPSK       | 1          | 0            | 24.32                  | 24.22                  | 24.27                  |
|         |            | 1          | 12           | 24.40                  | 24.42                  | 24.35                  |
|         |            | 1          | 24           | 24.28                  | 24.24                  | 24.23                  |
|         |            | 12         | 0            | 23.35                  | 23.32                  | 23.23                  |
|         |            | 12         | 6            | 23.30                  | 23.23                  | 23.30                  |
|         |            | 12         | 13           | 23.27                  | 23.32                  | 23.36                  |
|         |            | 25         | 0            | 23.37                  | 23.39                  | 23.29                  |
|         | 16QAM      | 1          | 0            | 23.52                  | 23.59                  | 23.59                  |
|         |            | 1          | 12           | 23.81                  | 23.79                  | 23.72                  |
|         |            | 1          | 24           | 23.49                  | 23.58                  | 23.60                  |
|         |            | 12         | 0            | 22.48                  | 22.44                  | 22.39                  |
|         |            | 12         | 6            | 22.39                  | 22.42                  | 22.42                  |
|         |            | 12         | 13           | 22.34                  | 22.46                  | 22.42                  |
|         |            | 25         | 0            | 22.47                  | 22.35                  | 22.37                  |
|         | 64QAM      | 1          | 0            | 22.43                  | 22.42                  | 22.50                  |
|         |            | 1          | 12           | 22.69                  | 22.73                  | 22.75                  |
|         |            | 1          | 24           | 22.41                  | 22.40                  | 22.46                  |
|         |            | 12         | 0            | 21.29                  | 21.22                  | 21.32                  |
|         |            | 12         | 6            | 21.23                  | 21.31                  | 21.22                  |
|         |            | 12         | 13           | 21.23                  | 21.18                  | 21.16                  |
|         |            | 25         | 0            | 21.21                  | 21.25                  | 21.25                  |

| Band/BW | Modulation | RB<br>Size | RB<br>Offset | / | Mid CH<br>23230        | / |
|---------|------------|------------|--------------|---|------------------------|---|
|         |            |            |              | / | Frequency<br>782.0 MHz | / |
| 13/ 10  | QPSK       | 1          | 0            | / | 24.33                  | / |
|         |            | 1          | 24           | / | <b>24.46</b>           | / |
|         |            | 1          | 49           | / | 24.31                  | / |
|         |            | 25         | 0            | / | 23.38                  | / |
|         |            | 25         | 12           | / | 23.42                  | / |
|         |            | 25         | 25           | / | 23.39                  | / |
|         |            | 50         | 0            | / | 23.41                  | / |
|         | 16QAM      | 1          | 0            | / | 23.64                  | / |
|         |            | 1          | 24           | / | 23.86                  | / |
|         |            | 1          | 49           | / | 23.62                  | / |
|         |            | 25         | 0            | / | 22.51                  | / |
|         |            | 25         | 12           | / | 22.48                  | / |
|         |            | 25         | 25           | / | 22.47                  | / |
|         |            | 50         | 0            | / | 22.50                  | / |
|         | 64QAM      | 1          | 0            | / | 22.55                  | / |
|         |            | 1          | 24           | / | 22.77                  | / |
|         |            | 1          | 49           | / | 22.55                  | / |
|         |            | 25         | 0            | / | 21.37                  | / |
|         |            | 25         | 12           | / | 21.33                  | / |
|         |            | 25         | 25           | / | 21.31                  | / |
|         |            | 50         | 0            | / | 21.35                  | / |

**ANT1(DOWN):**

| Band                      | WCDMA IV |        |              |
|---------------------------|----------|--------|--------------|
| Channel                   | 1312     | 1413   | 1513         |
| Frequency (MHz)           | 1712.4   | 1732.6 | 1752.6       |
| <b>RMC 12.2K</b>          | 24.61    | 24.63  | <b>24.69</b> |
| <b>HSDPA Subtest-1</b>    | 23.72    | 23.81  | 23.75        |
| <b>HSDPA Subtest-2</b>    | 23.79    | 23.77  | 23.70        |
| <b>HSDPA Subtest-3</b>    | 23.24    | 23.30  | 23.29        |
| <b>HSDPA Subtest-4</b>    | 23.32    | 23.35  | 23.37        |
| <b>DC-HSDPA Subtest-1</b> | 23.82    | 23.78  | 23.78        |
| <b>DC-HSDPA Subtest-2</b> | 23.80    | 23.83  | 23.88        |
| <b>DC-HSDPA Subtest-3</b> | 23.30    | 23.30  | 23.33        |
| <b>DC-HSDPA Subtest-4</b> | 23.30    | 23.28  | 23.38        |
| <b>HSUPA Subtest-1</b>    | 21.93    | 21.97  | 22.09        |
| <b>HSUPA Subtest-2</b>    | 21.63    | 21.66  | 21.74        |
| <b>HSUPA Subtest-3</b>    | 22.54    | 22.61  | 22.65        |
| <b>HSUPA Subtest-4</b>    | 21.28    | 21.32  | 21.28        |
| <b>HSUPA Subtest-5</b>    | 22.59    | 22.56  | 22.66        |
| <b>HSPA+ Subtest-1</b>    | 21.91    | 21.87  | 21.94        |

**LTE Band 7**

| Band/BW | Modulation | RB<br>Size | RB<br>Offset | Low CH<br>20775         | Mid CH<br>21100       | High CH<br>21425        |
|---------|------------|------------|--------------|-------------------------|-----------------------|-------------------------|
|         |            |            |              | Frequency<br>2502.5 MHz | Frequency<br>2535 MHz | Frequency<br>2567.5 MHz |
| 7/ 5    | QPSK       | 1          | 0            | 23.94                   | 23.56                 | 23.70                   |
|         |            | 1          | 12           | 24.18                   | 23.95                 | 24.07                   |
|         |            | 1          | 24           | 23.86                   | 23.61                 | 23.86                   |
|         |            | 12         | 0            | 23.02                   | 22.71                 | 22.87                   |
|         |            | 12         | 6            | 23.08                   | 22.85                 | 22.74                   |
|         |            | 12         | 13           | 22.99                   | 22.77                 | 23.03                   |
|         |            | 25         | 0            | 23.06                   | 22.64                 | 23.00                   |
|         | 16QAM      | 1          | 0            | 22.99                   | 22.69                 | 23.20                   |
|         |            | 1          | 12           | 23.30                   | 23.02                 | 23.59                   |
|         |            | 1          | 24           | 22.87                   | 22.64                 | 23.10                   |
|         |            | 12         | 0            | 22.02                   | 21.64                 | 21.90                   |
|         |            | 12         | 6            | 22.07                   | 21.70                 | 21.84                   |
|         |            | 12         | 13           | 22.02                   | 21.57                 | 21.89                   |
|         |            | 25         | 0            | 21.99                   | 21.63                 | 21.82                   |
|         | 64QAM      | 1          | 0            | 22.09                   | 21.98                 | 21.56                   |
|         |            | 1          | 12           | 22.44                   | 22.25                 | 21.84                   |
|         |            | 1          | 24           | 22.05                   | 21.87                 | 21.59                   |
|         |            | 12         | 0            | 21.01                   | 21.03                 | 20.97                   |
|         |            | 12         | 6            | 21.00                   | 21.02                 | 20.94                   |
|         |            | 12         | 13           | 20.99                   | 20.99                 | 20.87                   |
|         |            | 25         | 0            | 21.02                   | 20.96                 | 20.96                   |

| Band/BW | Modulation | RB<br>Size | RB<br>Offset | Low CH 20800          | Mid CH 21100          | High CH 21400         |
|---------|------------|------------|--------------|-----------------------|-----------------------|-----------------------|
|         |            |            |              | Frequency<br>2505 MHz | Frequency<br>2535 MHz | Frequency<br>2565 MHz |
| 7/ 10   | QPSK       | 1          | 0            | 23.88                 | 23.53                 | 23.67                 |
|         |            | 1          | 24           | 24.25                 | 23.99                 | 24.14                 |
|         |            | 1          | 49           | 23.76                 | 23.54                 | 23.72                 |
|         |            | 25         | 0            | 22.97                 | 22.78                 | 22.89                 |
|         |            | 25         | 12           | 23.13                 | 22.84                 | 22.78                 |
|         |            | 25         | 25           | 23.05                 | 22.79                 | 23.02                 |
|         |            | 50         | 0            | 22.96                 | 22.68                 | 23.05                 |
|         | 16QAM      | 1          | 0            | 22.91                 | 22.63                 | 23.23                 |
|         |            | 1          | 24           | 23.33                 | 23.02                 | 23.48                 |
|         |            | 1          | 49           | 22.93                 | 22.56                 | 23.13                 |
|         |            | 25         | 0            | 21.97                 | 21.59                 | 21.89                 |
|         |            | 25         | 12           | 22.11                 | 21.69                 | 21.88                 |
|         |            | 25         | 25           | 21.98                 | 21.50                 | 21.85                 |
|         |            | 50         | 0            | 21.95                 | 21.54                 | 21.86                 |
|         | 64QAM      | 1          | 0            | 21.98                 | 21.91                 | 21.52                 |
|         |            | 1          | 24           | 22.45                 | 22.34                 | 21.96                 |
|         |            | 1          | 49           | 21.93                 | 21.85                 | 21.56                 |
|         |            | 25         | 0            | 20.92                 | 20.99                 | 20.86                 |
|         |            | 25         | 12           | 21.14                 | 21.03                 | 20.91                 |
|         |            | 25         | 25           | 21.09                 | 20.94                 | 20.87                 |
|         |            | 50         | 0            | 20.92                 | 21.02                 | 21.01                 |

| Band/BW | Modulation | RB<br>Size | RB<br>Offset | Low CH<br>20825         | Mid CH<br>21100       | High CH<br>21375        |
|---------|------------|------------|--------------|-------------------------|-----------------------|-------------------------|
|         |            |            |              | Frequency<br>2507.5 MHz | Frequency<br>2535 MHz | Frequency<br>2562.5 MHz |
| 7/ 15   | QPSK       | 1          | 0            | 23.84                   | 23.54                 | 23.69                   |
|         |            | 1          | 37           | 24.23                   | 23.99                 | 24.10                   |
|         |            | 1          | 74           | 23.86                   | 23.53                 | 23.86                   |
|         |            | 36         | 0            | 23.02                   | 22.70                 | 22.88                   |
|         |            | 36         | 19           | 23.07                   | 22.81                 | 22.83                   |
|         |            | 36         | 39           | 23.11                   | 22.69                 | 23.06                   |
|         |            | 75         | 0            | 22.97                   | 22.62                 | 22.96                   |
|         | 16QAM      | 1          | 0            | 22.93                   | 22.58                 | 23.22                   |
|         |            | 1          | 37           | 23.30                   | 22.88                 | 23.57                   |
|         |            | 1          | 74           | 22.86                   | 22.63                 | 23.20                   |
|         |            | 36         | 0            | 22.04                   | 21.62                 | 21.87                   |
|         |            | 36         | 19           | 21.97                   | 21.74                 | 21.97                   |
|         |            | 36         | 39           | 22.01                   | 21.59                 | 21.78                   |
|         |            | 75         | 0            | 22.00                   | 21.58                 | 21.92                   |
|         | 64QAM      | 1          | 0            | 22.06                   | 21.89                 | 21.52                   |
|         |            | 1          | 37           | 22.42                   | 22.28                 | 21.89                   |
|         |            | 1          | 74           | 22.00                   | 21.95                 | 21.60                   |
|         |            | 36         | 0            | 20.99                   | 21.05                 | 20.84                   |
|         |            | 36         | 19           | 21.00                   | 21.04                 | 21.04                   |
|         |            | 36         | 39           | 21.02                   | 20.96                 | 20.86                   |
|         |            | 75         | 0            | 20.90                   | 21.02                 | 21.02                   |

| Band/BW | Modulation | RB<br>Size | RB<br>Offset | Low CH<br>20850       | Mid CH<br>21100       | High CH<br>21350      |
|---------|------------|------------|--------------|-----------------------|-----------------------|-----------------------|
|         |            |            |              | Frequency<br>2510 MHz | Frequency<br>2535 MHz | Frequency<br>2560 MHz |
| 7/ 20   | QPSK       | 1          | 0            | 23.95                 | 23.67                 | 23.79                 |
|         |            | 1          | 50           | <b>24.33</b>          | 24.02                 | 24.19                 |
|         |            | 1          | 99           | 23.91                 | 23.58                 | 23.87                 |
|         |            | 50         | 0            | 23.07                 | 22.83                 | 23.02                 |
|         |            | 50         | 25           | 23.14                 | 22.91                 | 23.08                 |
|         |            | 50         | 50           | 23.12                 | 22.82                 | 22.97                 |
|         |            | 100        | 0            | 23.10                 | 22.75                 | 23.09                 |
|         | 16QAM      | 1          | 0            | 23.02                 | 22.72                 | 23.35                 |
|         |            | 1          | 50           | 23.39                 | 23.03                 | 23.60                 |
|         |            | 1          | 99           | 23.01                 | 22.67                 | 23.21                 |
|         |            | 50         | 0            | 22.06                 | 21.67                 | 21.93                 |
|         |            | 50         | 25           | 22.12                 | 21.75                 | 21.98                 |
|         |            | 50         | 50           | 22.09                 | 21.62                 | 21.90                 |
|         |            | 100        | 0            | 22.05                 | 21.68                 | 21.93                 |
|         | 64QAM      | 1          | 0            | 22.13                 | 22.02                 | 21.58                 |
|         |            | 1          | 50           | 22.49                 | 22.35                 | 21.97                 |
|         |            | 1          | 99           | 22.06                 | 21.96                 | 21.62                 |
|         |            | 50         | 0            | 21.05                 | 21.08                 | 20.98                 |
|         |            | 50         | 25           | 21.15                 | 21.17                 | 21.05                 |
|         |            | 50         | 50           | 21.13                 | 21.04                 | 20.97                 |
|         |            | 100        | 0            | 21.04                 | 21.06                 | 21.03                 |



**BUREAU  
VERITAS**

**Test Report No.: W7L-P24050014RF07**

**LTE Band 13**

| Band/BW | Modulation | RB<br>Size | RB<br>Offset | Low CH<br>23205        | Mid CH<br>23230        | High CH<br>23255       |
|---------|------------|------------|--------------|------------------------|------------------------|------------------------|
|         |            |            |              | Frequency<br>779.5 MHz | Frequency<br>782.0 MHz | Frequency<br>784.5 MHz |
| 13/ 5   | QPSK       | 1          | 0            | 24.35                  | 24.30                  | 24.42                  |
|         |            | 1          | 12           | 24.53                  | 24.42                  | 24.48                  |
|         |            | 1          | 24           | 24.37                  | 24.35                  | 24.26                  |
|         |            | 12         | 0            | 23.37                  | 23.40                  | 23.41                  |
|         |            | 12         | 6            | 23.50                  | 23.51                  | 23.49                  |
|         |            | 12         | 13           | 23.54                  | 23.45                  | 23.50                  |
|         |            | 25         | 0            | 23.48                  | 23.51                  | 23.42                  |
|         | 16QAM      | 1          | 0            | 23.36                  | 23.35                  | 23.44                  |
|         |            | 1          | 12           | 23.73                  | 23.73                  | 23.70                  |
|         |            | 1          | 24           | 23.45                  | 23.42                  | 23.44                  |
|         |            | 12         | 0            | 22.41                  | 22.49                  | 22.45                  |
|         |            | 12         | 6            | 22.45                  | 22.44                  | 22.39                  |
|         |            | 12         | 13           | 22.38                  | 22.37                  | 22.41                  |
|         |            | 25         | 0            | 22.49                  | 22.40                  | 22.53                  |
|         | 64QAM      | 1          | 0            | 22.45                  | 22.54                  | 22.43                  |
|         |            | 1          | 12           | 22.73                  | 22.67                  | 22.72                  |
|         |            | 1          | 24           | 22.45                  | 22.48                  | 22.50                  |
|         |            | 12         | 0            | 21.40                  | 21.38                  | 21.44                  |
|         |            | 12         | 6            | 21.39                  | 21.44                  | 21.38                  |
|         |            | 12         | 13           | 21.39                  | 21.44                  | 21.36                  |
|         |            | 25         | 0            | 21.39                  | 21.47                  | 21.47                  |

| Band/BW | Modulation | RB<br>Size | RB<br>Offset | / | Mid CH<br>23230        | / |
|---------|------------|------------|--------------|---|------------------------|---|
|         |            |            |              | / | Frequency<br>782.0 MHz | / |
| 13/ 10  | QPSK       | 1          | 0            | / | 24.45                  | / |
|         |            | 1          | 24           | / | <b>24.54</b>           | / |
|         |            | 1          | 49           | / | 24.40                  | / |
|         |            | 25         | 0            | / | 23.51                  | / |
|         |            | 25         | 12           | / | 23.63                  | / |
|         |            | 25         | 25           | / | 23.56                  | / |
|         |            | 50         | 0            | / | 23.53                  | / |
|         | 16QAM      | 1          | 0            | / | 23.46                  | / |
|         |            | 1          | 24           | / | 23.74                  | / |
|         |            | 1          | 49           | / | 23.56                  | / |
|         |            | 25         | 0            | / | 22.51                  | / |
|         |            | 25         | 12           | / | 22.52                  | / |
|         |            | 25         | 25           | / | 22.49                  | / |
|         |            | 50         | 0            | / | 22.55                  | / |
|         | 64QAM      | 1          | 0            | / | 22.56                  | / |
|         |            | 1          | 24           | / | 22.78                  | / |
|         |            | 1          | 49           | / | 22.59                  | / |
|         |            | 25         | 0            | / | 21.49                  | / |
|         |            | 25         | 12           | / | 21.48                  | / |
|         |            | 25         | 25           | / | 21.47                  | / |
|         |            | 50         | 0            | / | 21.51                  | / |

**EIRP  
ANT0(UP):**

**WCDMA IV**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 1312    | 1712.4          | 24.67                 | -1.5                                | 23.17      | 207.49    | 1         |
| 1413    | 1732.6          | 24.76                 | -1.5                                | 23.26      | 211.84    | 1         |
| 1513    | 1752.6          | 24.79                 | -1.5                                | 23.29      | 213.3     | 1         |

**LTE BAND 7**

**CHANNEL BANDWIDTH: 5MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20775   | 2502.5          | 23.7                  | -1                                  | 22.7       | 186.21    | 2         |
| 21100   | 2535.0          | 23.32                 | -1                                  | 22.32      | 170.61    | 2         |
| 21425   | 2567.5          | 23.42                 | -1                                  | 22.42      | 174.58    | 2         |

**CHANNEL BANDWIDTH: 5MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20775   | 2502.5          | 22.9                  | -1                                  | 21.9       | 154.88    | 2         |
| 21100   | 2535.0          | 22.49                 | -1                                  | 21.49      | 140.93    | 2         |
| 21425   | 2567.5          | 22.62                 | -1                                  | 21.62      | 145.21    | 2         |

**CHANNEL BANDWIDTH: 5MHz 64QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20775   | 2502.5          | 21.85                 | -1                                  | 20.85      | 121.62    | 2         |
| 21100   | 2535            | 21.52                 | -1                                  | 20.52      | 112.72    | 2         |
| 21425   | 2567.5          | 21.43                 | -1                                  | 20.43      | 110.41    | 2         |

**CHANNEL BANDWIDTH: 10MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20800   | 2505.0          | 23.59                 | -1                                  | 22.59      | 181.55    | 2         |
| 21100   | 2535.0          | 23.39                 | -1                                  | 22.39      | 173.38    | 2         |
| 21400   | 2565.0          | 23.38                 | -1                                  | 22.38      | 172.98    | 2         |

**CHANNEL BANDWIDTH: 10MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20800   | 2505.0          | 22.88                 | -1                                  | 21.88      | 154.17    | 2         |
| 21100   | 2535.0          | 22.52                 | -1                                  | 21.52      | 141.91    | 2         |
| 21400   | 2565.0          | 22.61                 | -1                                  | 21.61      | 144.88    | 2         |

**CHANNEL BANDWIDTH: 10MHz 64QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20800   | 2505            | 21.86                 | -1                                  | 20.86      | 121.9     | 2         |
| 21100   | 2535            | 21.46                 | -1                                  | 20.46      | 111.17    | 2         |
| 21400   | 2565            | 21.44                 | -1                                  | 20.44      | 110.66    | 2         |

**CHANNEL BANDWIDTH: 15MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20825   | 2507.5          | 23.62                 | -1                                  | 22.62      | 182.81    | 2         |
| 21100   | 2535.0          | 23.44                 | -1                                  | 22.44      | 175.39    | 2         |
| 21375   | 2562.5          | 23.4                  | -1                                  | 22.4       | 173.78    | 2         |

**CHANNEL BANDWIDTH: 15MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20825   | 2507.5          | 22.9                  | -1                                  | 21.9       | 154.88    | 2         |
| 21100   | 2535.0          | 22.59                 | -1                                  | 21.59      | 144.21    | 2         |
| 21375   | 2562.5          | 22.58                 | -1                                  | 21.58      | 143.88    | 2         |

**CHANNEL BANDWIDTH: 15MHz 64QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20825   | 2507.5          | 21.86                 | -1                                  | 20.86      | 121.9     | 2         |
| 21100   | 2535            | 21.42                 | -1                                  | 20.42      | 110.15    | 2         |
| 21375   | 2562.5          | 21.46                 | -1                                  | 20.46      | 111.17    | 2         |



**BUREAU  
VERITAS**

Test Report No.: W7L-P24050014RF07

**CHANNEL BANDWIDTH: 20MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20850   | 2510.0          | 23.72                 | -1                                  | 22.72      | 187.07    | 2         |
| 21100   | 2535.0          | 23.47                 | -1                                  | 22.47      | 176.6     | 2         |
| 21350   | 2560.0          | 23.45                 | -1                                  | 22.45      | 175.79    | 2         |

**CHANNEL BANDWIDTH: 20MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20850   | 2510.0          | 22.93                 | -1                                  | 21.93      | 155.96    | 2         |
| 21100   | 2535.0          | 22.64                 | -1                                  | 21.64      | 145.88    | 2         |
| 21350   | 2560.0          | 22.65                 | -1                                  | 21.65      | 146.22    | 2         |

**CHANNEL BANDWIDTH: 20MHz 64QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20850   | 2510            | 21.88                 | -1                                  | 20.88      | 122.46    | 2         |
| 21100   | 2535            | 21.57                 | -1                                  | 20.57      | 114.02    | 2         |
| 21350   | 2560            | 21.58                 | -1                                  | 20.58      | 114.29    | 2         |



**BUREAU  
VERITAS**

Test Report No.: W7L-P24050014RF07

**LTE BAND 13**

**CHANNEL BANDWIDTH: 5MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | ERP (dBm) | ERP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|-----------|----------|-----------|
| 23205   | 779.5           | 24.4                  | -6.5                                | 15.75     | 37.58    | 3         |
| 23230   | 782             | 24.42                 | -6.5                                | 15.77     | 37.76    | 3         |
| 23255   | 784.5           | 24.35                 | -6.5                                | 15.7      | 37.15    | 3         |

**CHANNEL BANDWIDTH: 5MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | ERP (dBm) | ERP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|-----------|----------|-----------|
| 23205   | 779.5           | 23.81                 | -6.5                                | 15.16     | 32.81    | 3         |
| 23230   | 782             | 23.79                 | -6.5                                | 15.14     | 32.66    | 3         |
| 23255   | 784.5           | 23.72                 | -6.5                                | 15.07     | 32.14    | 3         |

**CHANNEL BANDWIDTH: 5MHz 64QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | ERP (dBm) | ERP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|-----------|----------|-----------|
| 23205   | 779.5           | 22.69                 | -6.5                                | 14.04     | 25.35    | 3         |
| 23230   | 782             | 22.73                 | -6.5                                | 14.08     | 25.59    | 3         |
| 23255   | 784.5           | 22.75                 | -6.5                                | 14.1      | 25.7     | 3         |

**CHANNEL BANDWIDTH: 10MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | ERP (dBm) | ERP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|-----------|----------|-----------|
| -       | -               | -                     | -                                   | -         | -        | -         |
| 23230   | 782             | 24.46                 | -6.5                                | 15.81     | 38.11    | 3         |
| -       | -               | -                     | -                                   | -         | -        | -         |

**CHANNEL BANDWIDTH: 10MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | ERP (dBm) | ERP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|-----------|----------|-----------|
| -       | -               | -                     | -                                   | -         | -        | -         |
| 23230   | 782             | 23.86                 | -6.5                                | 15.21     | 33.19    | 3         |
| -       | -               | -                     | -                                   | -         | -        | -         |

**CHANNEL BANDWIDTH: 10MHz 64QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | ERP (dBm) | ERP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|-----------|----------|-----------|
| -       | -               | -                     | -                                   | -         | -        | -         |
| 23230   | 782             | 22.77                 | -6.5                                | 14.12     | 25.82    | 3         |
| -       | -               | -                     | -                                   | -         | -        | -         |

**REMARKS:** ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).

**ANT1(DOWN):**

**WCDMA IV**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 1312    | 1712.4          | 24.61                 | -1.5                                | 23.11      | 204.64    | 1         |
| 1413    | 1732.6          | 24.63                 | -1.5                                | 23.13      | 205.59    | 1         |
| 1513    | 1752.6          | 24.69                 | -1.5                                | 23.19      | 208.45    | 1         |

**LTE BAND 7**

**CHANNEL BANDWIDTH: 5MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20775   | 2502.5          | 24.18                 | -0.5                                | 23.68      | 233.35    | 2         |
| 21100   | 2535.0          | 23.95                 | -0.5                                | 23.45      | 221.31    | 2         |
| 21425   | 2567.5          | 24.07                 | -0.5                                | 23.57      | 227.51    | 2         |

**CHANNEL BANDWIDTH: 5MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20775   | 2502.5          | 23.3                  | -0.5                                | 22.8       | 190.55    | 2         |
| 21100   | 2535.0          | 23.02                 | -0.5                                | 22.52      | 178.65    | 2         |
| 21425   | 2567.5          | 23.59                 | -0.5                                | 23.09      | 203.7     | 2         |

**CHANNEL BANDWIDTH: 5MHz 64QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20775   | 2502.5          | 22.44                 | -0.5                                | 21.94      | 156.31    | 2         |
| 21100   | 2535            | 22.25                 | -0.5                                | 21.75      | 149.62    | 2         |
| 21425   | 2567.5          | 21.84                 | -0.5                                | 21.34      | 136.14    | 2         |

**CHANNEL BANDWIDTH: 10MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20800   | 2505.0          | 24.25                 | -0.5                                | 23.75      | 237.14    | 2         |
| 21100   | 2535.0          | 23.99                 | -0.5                                | 23.49      | 223.36    | 2         |
| 21400   | 2565.0          | 24.14                 | -0.5                                | 23.64      | 231.21    | 2         |

**CHANNEL BANDWIDTH: 10MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20800   | 2505.0          | 23.33                 | -0.5                                | 22.83      | 191.87    | 2         |
| 21100   | 2535.0          | 23.02                 | -0.5                                | 22.52      | 178.65    | 2         |
| 21400   | 2565.0          | 23.48                 | -0.5                                | 22.98      | 198.61    | 2         |

**CHANNEL BANDWIDTH: 10MHz 64QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20800   | 2505            | 22.45                 | -0.5                                | 21.95      | 156.68    | 2         |
| 21100   | 2535            | 22.34                 | -0.5                                | 21.84      | 152.76    | 2         |
| 21400   | 2565            | 21.96                 | -0.5                                | 21.46      | 139.96    | 2         |

**CHANNEL BANDWIDTH: 15MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20825   | 2507.5          | 24.23                 | -0.5                                | 23.73      | 236.05    | 2         |
| 21100   | 2535.0          | 23.99                 | -0.5                                | 23.49      | 223.36    | 2         |
| 21375   | 2562.5          | 24.1                  | -0.5                                | 23.6       | 229.09    | 2         |

**CHANNEL BANDWIDTH: 15MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20825   | 2507.5          | 23.3                  | -0.5                                | 22.8       | 190.55    | 2         |
| 21100   | 2535.0          | 22.88                 | -0.5                                | 22.38      | 172.98    | 2         |
| 21375   | 2562.5          | 23.57                 | -0.5                                | 23.07      | 202.77    | 2         |

**CHANNEL BANDWIDTH: 15MHz 64QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20825   | 2507.5          | 22.42                 | -0.5                                | 21.92      | 155.6     | 2         |
| 21100   | 2535            | 22.28                 | -0.5                                | 21.78      | 150.66    | 2         |
| 21375   | 2562.5          | 21.89                 | -0.5                                | 21.39      | 137.72    | 2         |



**BUREAU  
VERITAS**

Test Report No.: W7L-P24050014RF07

**CHANNEL BANDWIDTH: 20MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20850   | 2510.0          | 24.33                 | -0.5                                | 23.83      | 241.55    | 2         |
| 21100   | 2535.0          | 24.02                 | -0.5                                | 23.52      | 224.91    | 2         |
| 21350   | 2560.0          | 24.19                 | -0.5                                | 23.69      | 233.88    | 2         |

**CHANNEL BANDWIDTH: 20MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20850   | 2510.0          | 23.39                 | -0.5                                | 22.89      | 194.54    | 2         |
| 21100   | 2535.0          | 23.03                 | -0.5                                | 22.53      | 179.06    | 2         |
| 21350   | 2560.0          | 23.6                  | -0.5                                | 23.1       | 204.17    | 2         |

**CHANNEL BANDWIDTH: 20MHz 64QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 20850   | 2510            | 22.49                 | -0.5                                | 21.99      | 158.12    | 2         |
| 21100   | 2535            | 22.35                 | -0.5                                | 21.85      | 153.11    | 2         |
| 21350   | 2560            | 21.97                 | -0.5                                | 21.47      | 140.28    | 2         |



**BUREAU  
VERITAS**

Test Report No.: W7L-P24050014RF07

# **LTE BAND 13**

## **CHANNEL BANDWIDTH: 5MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | ERP (dBm) | ERP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|-----------|----------|-----------|
| 23205   | 779.5           | 24.53                 | -5                                  | 17.38     | 54.7     | 3         |
| 23230   | 782             | 24.42                 | -5                                  | 17.27     | 53.33    | 3         |
| 23255   | 784.5           | 24.48                 | -5                                  | 17.33     | 54.08    | 3         |

## **CHANNEL BANDWIDTH: 5MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | ERP (dBm) | ERP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|-----------|----------|-----------|
| 23205   | 779.5           | 23.73                 | -5                                  | 16.58     | 45.5     | 3         |
| 23230   | 782             | 23.73                 | -5                                  | 16.58     | 45.5     | 3         |
| 23255   | 784.5           | 23.7                  | -5                                  | 16.55     | 45.19    | 3         |

## **CHANNEL BANDWIDTH: 5MHz 64QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | ERP (dBm) | ERP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|-----------|----------|-----------|
| 23205   | 779.5           | 22.73                 | -5                                  | 15.58     | 36.14    | 3         |
| 23230   | 782             | 22.67                 | -5                                  | 15.52     | 35.65    | 3         |
| 23255   | 784.5           | 22.72                 | -5                                  | 15.57     | 36.06    | 3         |

**CHANNEL BANDWIDTH: 10MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | ERP (dBm) | ERP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|-----------|----------|-----------|
| -       | -               | -                     | -                                   | -         | -        | -         |
| 23230   | 782             | 24.54                 | -5                                  | 17.39     | 54.83    | 3         |
| -       | -               | -                     | -                                   | -         | -        | -         |

**CHANNEL BANDWIDTH: 10MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | ERP (dBm) | ERP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|-----------|----------|-----------|
| -       | -               | -                     | -                                   | -         | -        | -         |
| 23230   | 782             | 23.74                 | -5                                  | 16.59     | 45.6     | 3         |
| -       | -               | -                     | -                                   | -         | -        | -         |

**CHANNEL BANDWIDTH: 10MHz 64QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>c</sub> (dB) | ERP (dBm) | ERP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|-----------|----------|-----------|
| -       | -               | -                     | -                                   | -         | -        | -         |
| 23230   | 782             | 22.78                 | -5                                  | 15.63     | 36.56    | 3         |
| -       | -               | -                     | -                                   | -         | -        | -         |

**REMARKS:** ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).

## 3.2 FREQUENCY STABILITY MEASUREMENT

### 3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

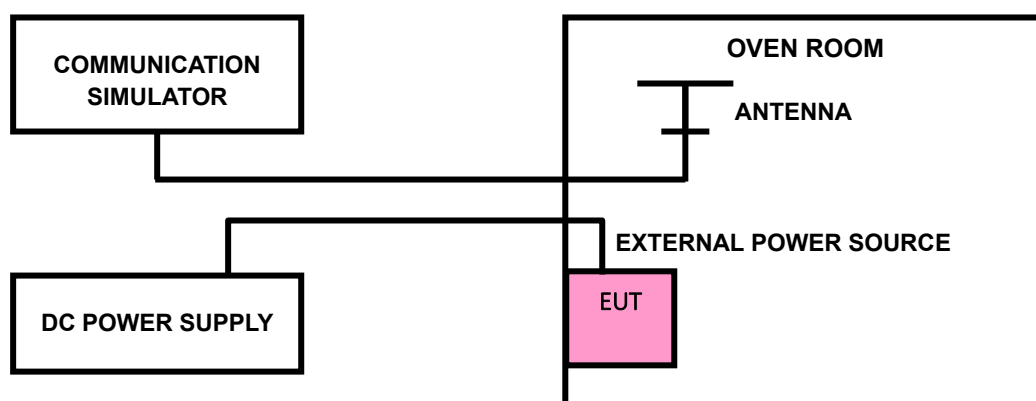
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

### 3.2.2 TEST PROCEDURE

- The device is placed at the oven room. The oven room could control the temperatures and humidity. Power warms up is at least 15 min and power applied should perform before recording frequency error.
- EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be recording the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be holding  $\pm 0.5^{\circ}\text{C}$  during the measurement testing. Each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

**NOTE:** The frequency error was recorded frequency error from the communication simulator.

### 3.2.3 TEST SETUP





**Test Report No.: W7L-P24050014RF07**

### 3.2.4 TEST RESULTS

Please Refer to Appendix Of this test report.

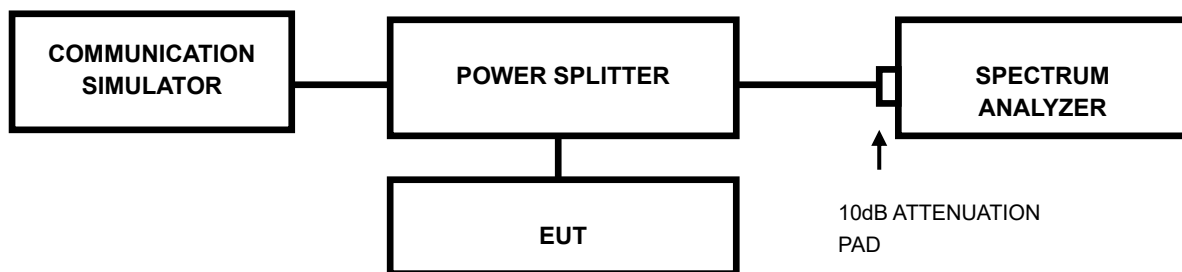
Note: LV = Low voltage (3.6V); NV = Normal voltage (3.84V); HV= High voltage (4.4V).  
NT = Normal temperature (25°C)

### 3.3 OCCUPIED BANDWIDTH MEASUREMENT

#### 3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

The width of a frequency band is such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage. 0.5 % of the total mean power of a given emission.

#### 3.3.2 TEST SETUP



#### 3.3.3 TEST PROCEDURES

- The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.



Test Report No.: W7L-P24050014RF07

### 3.3.4 TEST RESULTS

Please Refer to Appendix Of this test report.

### 3.4 BAND EDGE MEASUREMENT

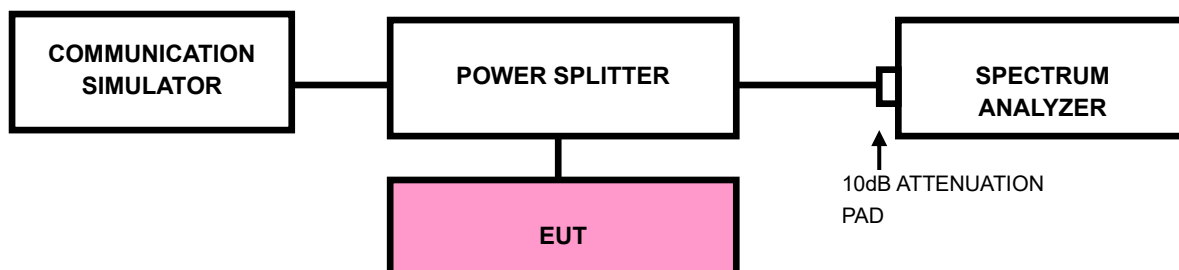
#### 3.4.1 LIMITS OF BAND EDGE MEASUREMENT

According to FCC 27.53(c) specified that For operations in the 746-758 MHz band and the 776-788 MHz band , the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB. 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. In addition, the power of any unwanted emission in an 6.25kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P(dBW), by at least  $65 + 10 \log 10 p(P)$ , dB, for mobile and portable equipment.

According to FCC 27.53(h) specified that For operations in the 1710-1755 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  $43 + 10 \log (P)$  dB. However, in the 1-megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

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

### 3.4.2 TEST SETUP



### 3.4.3 TEST PROCEDURES

- a) All measurements were done at low and high operational frequency range.
- b) Connect the transmitter to the spectrum analyzer via coaxial cable while ensuring proper impedance matching.
- c) Tune the analyzer to the nominal center frequency of the emission bandwidth (EBW)
- d) .Set the resolution bandwidth (RBW)  $\geq 1\%$  EBW in the 1MHz band immediately outside and adjacent to the band edge.
- e) Beyond the 1MHz band from the band edge, RBW=1MHz was used.
- f) Set the video bandwidth (VBW) to  $\geq 3 \times$  RBW.
- g) Select the average power (RMS) display detector.
- h) Set the number of measurement points to  $\geq 1001$ .
- i) Use auto-coupled sweep time.
- j) Perform the measurement over an interval of time when the transmission is continuous and at its maximum power level.
- k) The RF fundamental frequency should be excluded against the limit line in the operating frequency band and use RBW is 10KHz or 30/100KHz.
- l) Record the max trace plot into the test report.



Test Report No.: W7L-P24050014RF07

### 3.4.4 TEST RESULTS

Please Refer to Appendix Of this test report.

### 3.5 CONDUCTED SPURIOUS EMISSIONS

#### 3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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. The emission limit is equal to  $-13\text{dBm}$ .

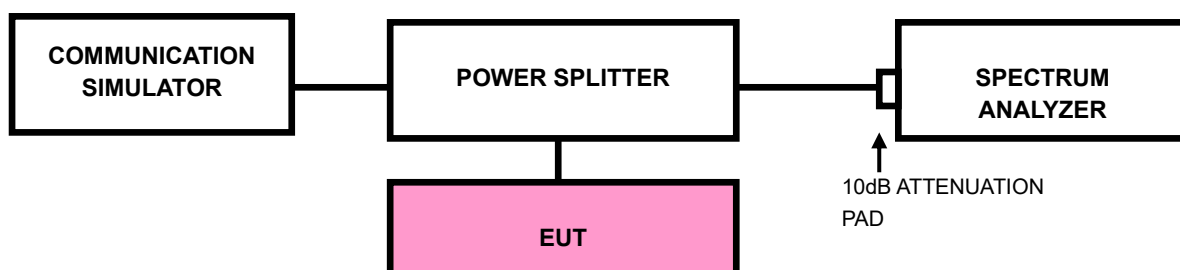
For: LTE Band7/13

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $55 + 10 \log_{10}(P)$  dB. The limit of emission is equal to  $-25\text{dBm}$ .

#### 3.5.2 TEST PROCEDURE

- a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle, and high operational frequency range.
- b. Measuring frequency range is from 9kHz up to a frequency including its 10<sup>th</sup> harmonic. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are used for conducted emission measurement.

#### 3.5.3 TEST SETUP





**Test Report No.: W7L-P24050014RF07**

### 3.5.4 TEST RESULTS

NOTE : The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

Please Refer to Appendix Of this test report.

### 3.6 RADIATED EMISSION MEASUREMENT

#### 3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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. The emission limit equal to  $-13\text{dBm}$ .

For: LTE Band7

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $55 + 10 \log_{10}(P)$  dB. The limit of emission is equal to  $-25\text{dBm}$ .

#### 3.6.2 TEST PROCEDURES

- a. The substitute method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator exports the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved the receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G.
- c.  $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$ .
- d. E.R.P power can be calculated from E.I.R.P power by subtracting the gain of dipole,  $\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi}$ .

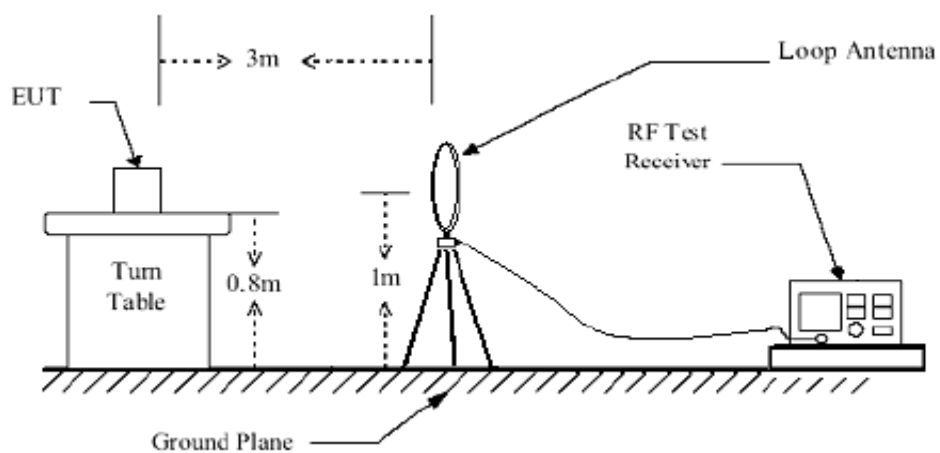
**NOTE:** The resolution bandwidth of spectrum analyzer is 1 MHz, and the video bandwidth is 3 MHz.

#### 3.6.3 DEVIATION FROM TEST STANDARD

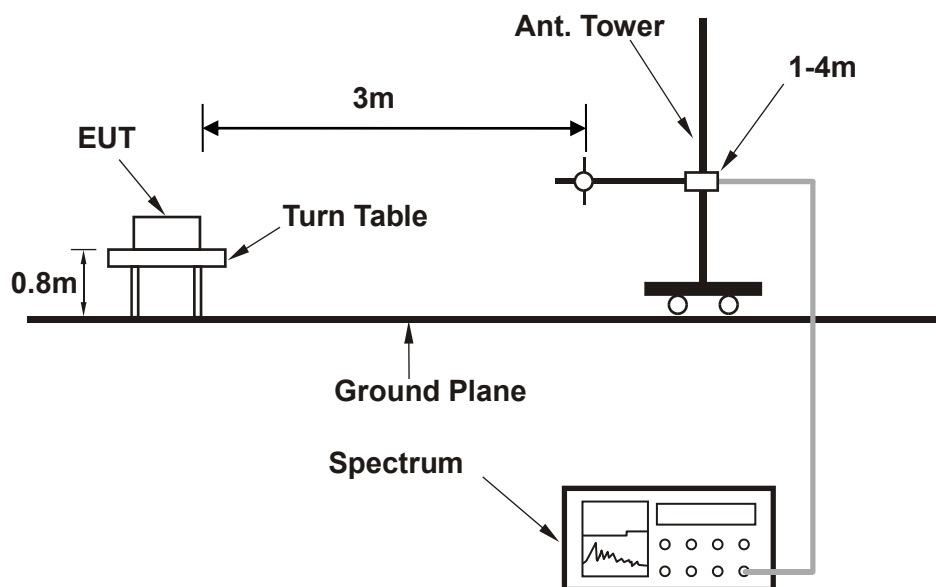
No deviation

### 3.6.4 TEST SETUP

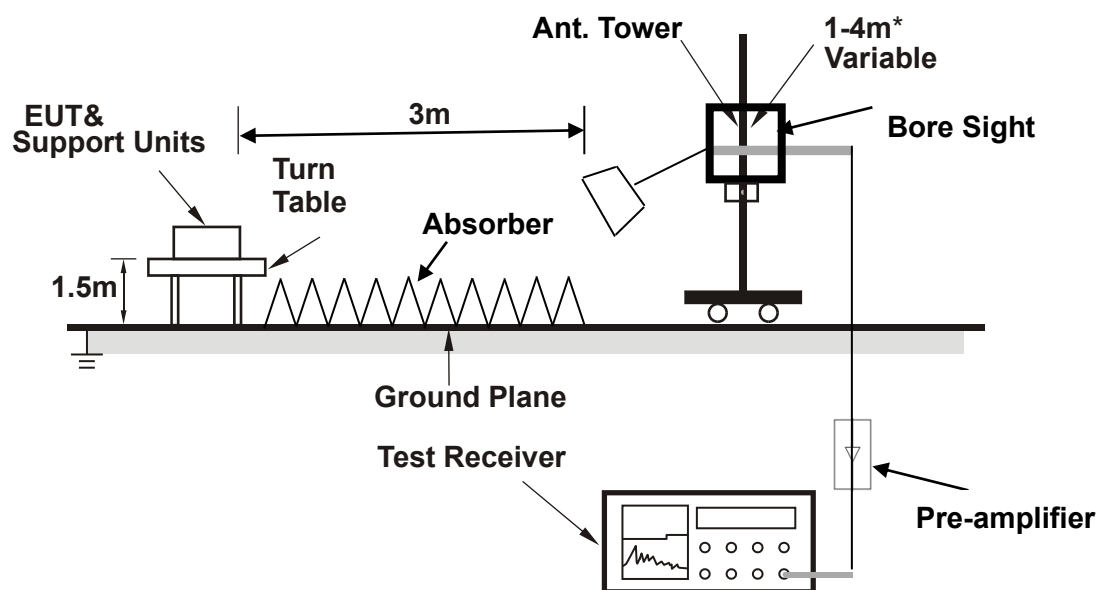
#### < Frequency Range below 30MHz >



#### < Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



**Note:** Above 1G is a directional antenna depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

### 3.6.5 TEST RESULTS

NOTE : The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

#### BELOW 1GHz WORST-CASE DATA

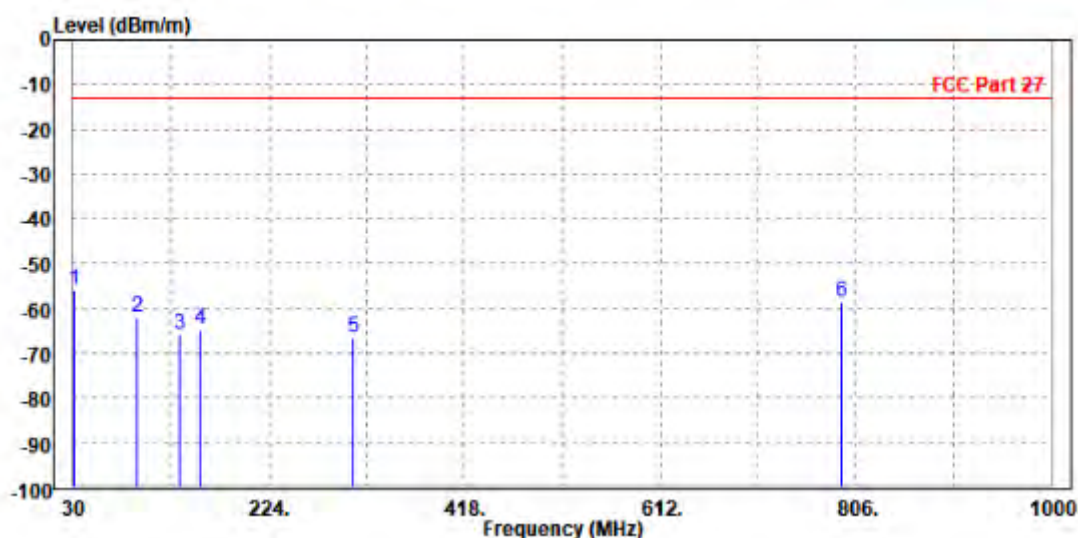
30 MHz – 1GHz data:

LTE Band 13(Ant01) (DOWN):

CHANNEL BANDWIDTH: 5MHz / QPSK

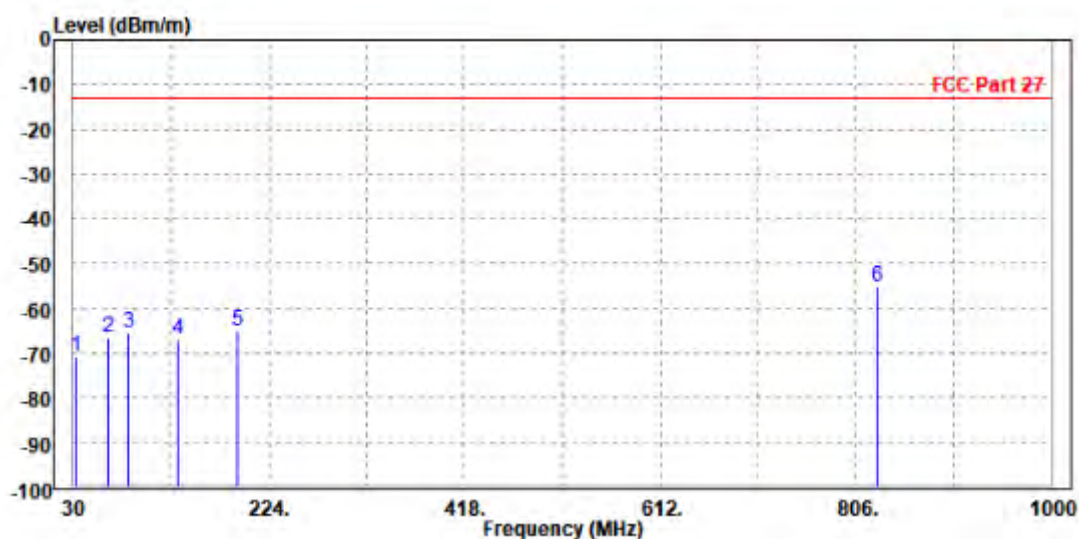
|                                                     |                  |                 |               |
|-----------------------------------------------------|------------------|-----------------|---------------|
| MODE                                                | TX channel 23255 | FREQUENCY RANGE | Below 1000MHz |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                           | Jace Hu          |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                  |                 |               |

|   |    | Freq    | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|----|---------|--------|------------|------------|------------|--------|--------|------------|
|   |    | MHz     | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | PP | 30.970  | -55.80 | -53.29     | -13.00     | -42.80     | -2.51  | Peak   | Horizontal |
| 2 |    | 94.020  | -61.98 | -49.15     | -13.00     | -48.98     | -12.83 | Peak   | Horizontal |
| 3 |    | 134.760 | -65.92 | -50.55     | -13.00     | -52.92     | -15.37 | Peak   | Horizontal |
| 4 |    | 156.100 | -64.81 | -49.90     | -13.00     | -51.81     | -14.91 | Peak   | Horizontal |
| 5 |    | 307.420 | -66.45 | -57.79     | -13.00     | -53.45     | -8.66  | Peak   | Horizontal |
| 6 |    | 791.450 | -58.72 | -63.86     | -13.00     | -45.72     | 5.14   | Peak   | Horizontal |



|                                                   |                  |                 |               |
|---------------------------------------------------|------------------|-----------------|---------------|
| MODE                                              | TX channel 23255 | FREQUENCY RANGE | Below 1000MHz |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH  | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                         | Jace Hu          |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                  |                 |               |

|      | Freq    | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|---------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz     | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 31.940  | -70.57 | -49.16     | -13.00     | -57.57     | -21.41 | Peak   | Vertical  |
| 2    | 64.920  | -66.40 | -47.01     | -13.00     | -53.40     | -19.39 | Peak   | Vertical  |
| 3    | 85.290  | -65.46 | -47.33     | -13.00     | -52.46     | -18.13 | Peak   | Vertical  |
| 4    | 133.790 | -66.80 | -50.49     | -13.00     | -53.80     | -16.31 | Peak   | Vertical  |
| 5    | 192.960 | -65.18 | -57.88     | -13.00     | -52.18     | -7.30  | Peak   | Vertical  |
| 6 PP | 826.370 | -55.17 | -62.06     | -13.00     | -42.17     | 6.89   | Peak   | Vertical  |





**BUREAU  
VERITAS**

Test Report No.: W7L-P24050014RF07

# **ABOVE 1GHz**

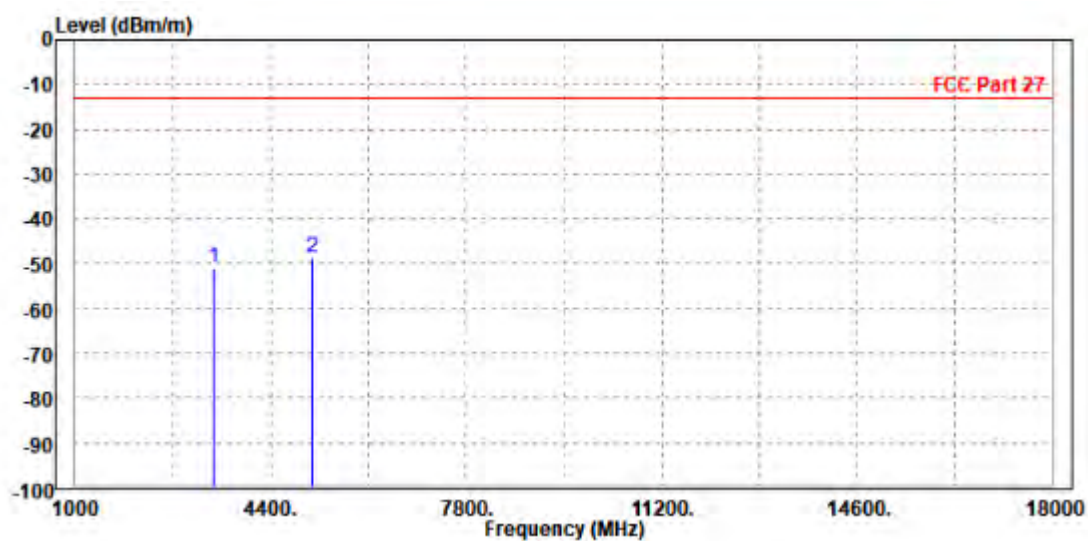
**Note:** For higher frequency, the emission is too low to be detected.

## **WCDMA Band IV(Ant1) (DOWN):**

### **CH 1312**

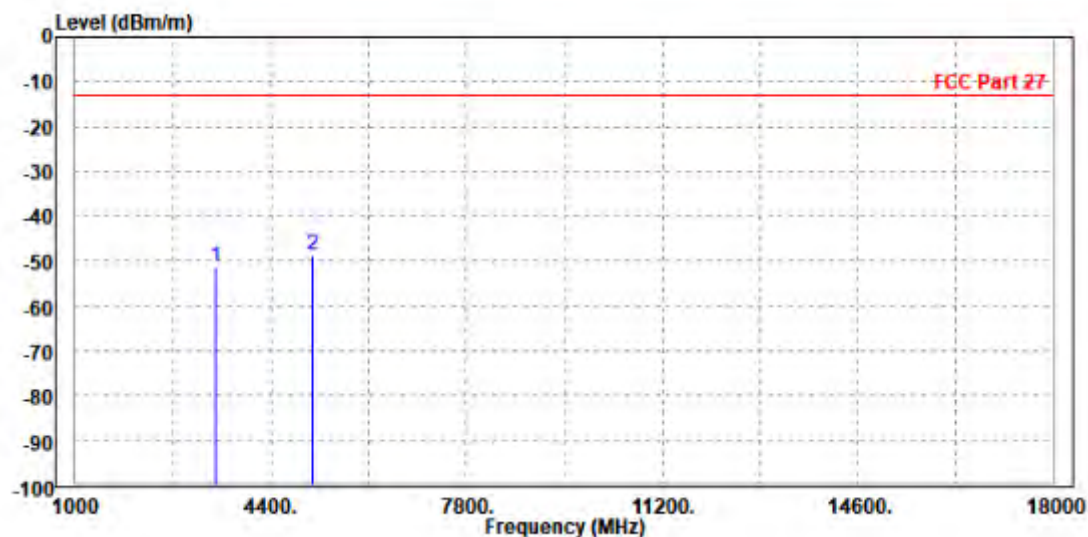
|                                                     |                 |                 |               |
|-----------------------------------------------------|-----------------|-----------------|---------------|
| MODE                                                | TX channel 1312 | FREQUENCY RANGE | Above 1000MHz |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                           | Jace Hu         |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                 |                 |               |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|------|----------|--------|------------|------------|------------|--------|--------|------------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1    | 3424.000 | -51.08 | -59.59     | -13.00     | -38.08     | 8.51   | Peak   | Horizontal |
| 2 PP | 5131.000 | -48.61 | -59.86     | -13.00     | -35.61     | 11.25  | Peak   | Horizontal |



|                                                   |                 |                 |               |
|---------------------------------------------------|-----------------|-----------------|---------------|
| MODE                                              | TX channel 1312 | FREQUENCY RANGE | Above 1000MHz |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                         | Jace Hu         |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                 |                 |               |

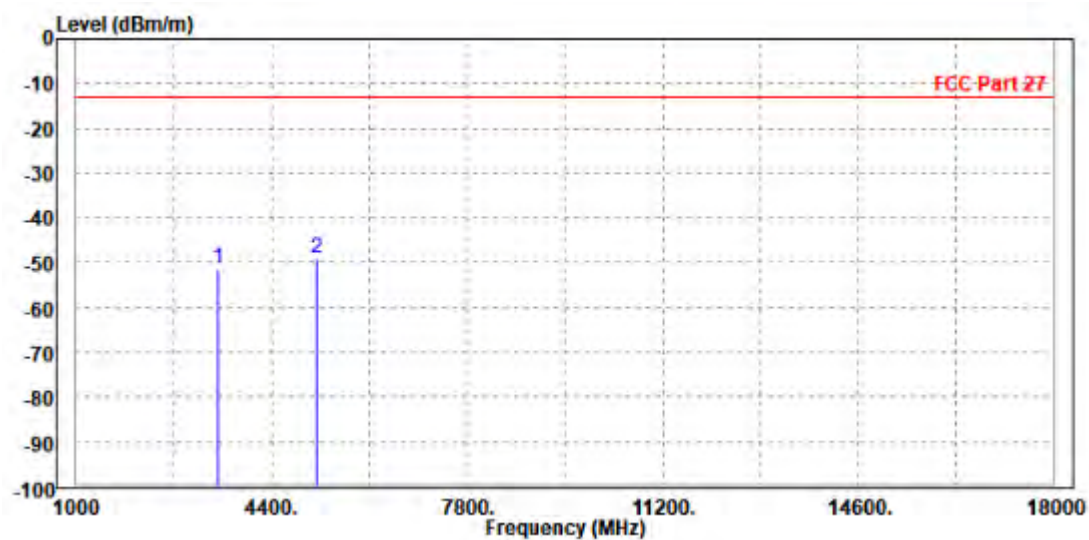
|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | 3431.000    | -51.24 | -59.91     | -13.00     | -38.24     | 8.67   | Peak   | Vertical  |
| 2 | PP 5136.000 | -48.60 | -60.23     | -13.00     | -35.60     | 11.63  | Peak   | Vertical  |



CH 1413

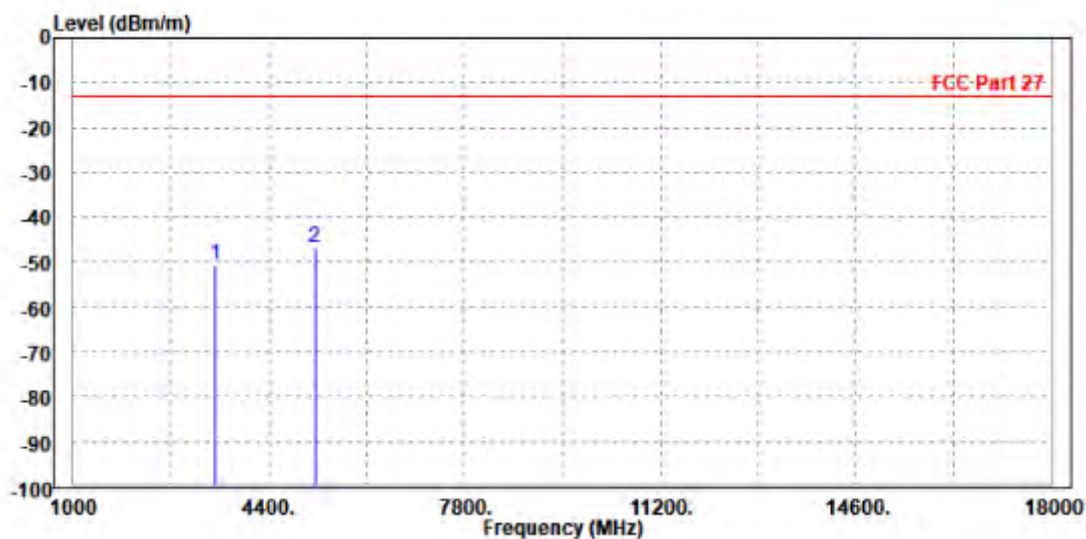
|                                                     |                 |                 |               |
|-----------------------------------------------------|-----------------|-----------------|---------------|
| MODE                                                | TX channel 1413 | FREQUENCY RANGE | Above 1000MHz |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                           | Jace Hu         |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                 |                 |               |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|------|----------|--------|------------|------------|------------|--------|--------|------------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1    | 3465.000 | -51.18 | -59.72     | -13.00     | -38.18     | 8.54   | Peak   | Horizontal |
| 2 PP | 5196.000 | -48.90 | -60.25     | -13.00     | -35.90     | 11.35  | Peak   | Horizontal |



|                                                   |                 |                 |               |
|---------------------------------------------------|-----------------|-----------------|---------------|
| MODE                                              | TX channel 1413 | FREQUENCY RANGE | Above 1000MHz |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                         | Jace Hu         |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                 |                 |               |

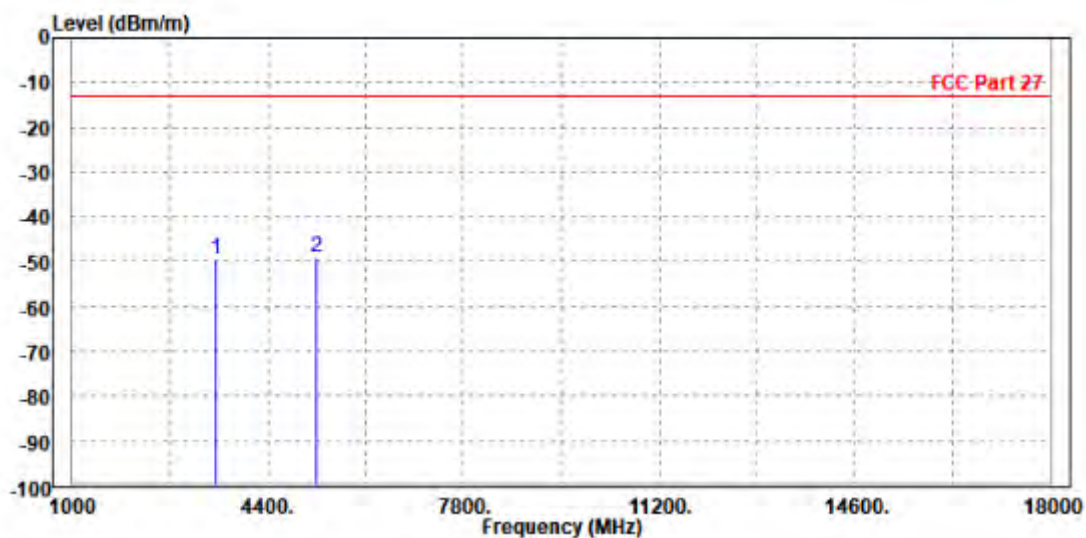
|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | 3464.000    | -50.64 | -59.29     | -13.00     | -37.64     | 8.65   | Peak   | Vertical  |
| 2 | PP 5199.000 | -46.69 | -58.45     | -13.00     | -33.69     | 11.76  | Peak   | Vertical  |



CH 1513

|                                                     |                 |                 |               |
|-----------------------------------------------------|-----------------|-----------------|---------------|
| MODE                                                | TX channel 1513 | FREQUENCY RANGE | Above 1000MHz |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                           | Jace Hu         |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                 |                 |               |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|------|----------|--------|------------|------------|------------|--------|--------|------------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1    | 3499.000 | -49.47 | -58.03     | -13.00     | -36.47     | 8.56   | Peak   | Horizontal |
| 2 PP | 5256.000 | -49.01 | -60.45     | -13.00     | -36.01     | 11.44  | Peak   | Horizontal |



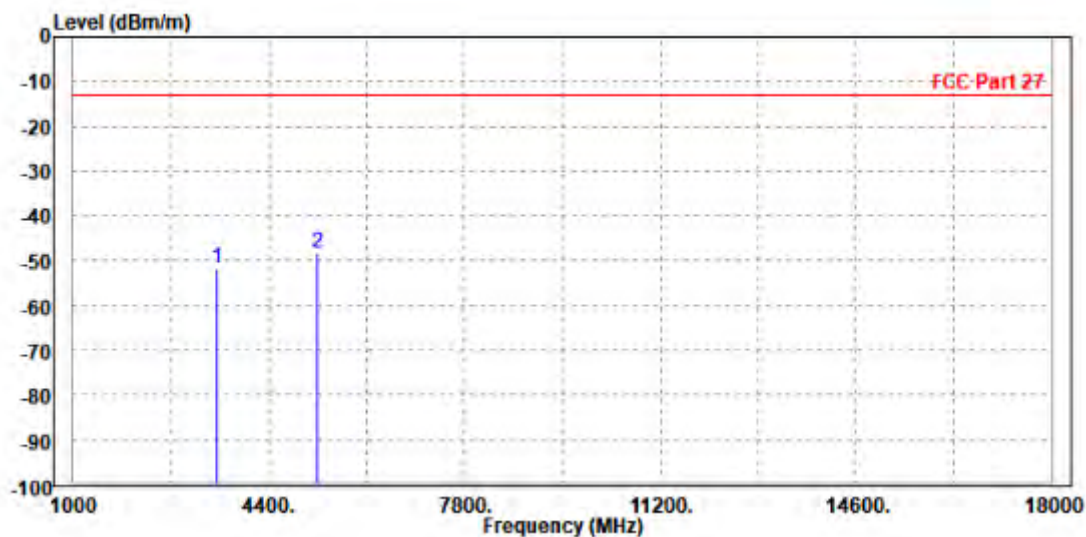


**BUREAU  
VERITAS**

Test Report No.: W7L-P24050014RF07

|                                                   |                 |                 |               |
|---------------------------------------------------|-----------------|-----------------|---------------|
| MODE                                              | TX channel 1513 | FREQUENCY RANGE | Above 1000MHz |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                         | Jace Hu         |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                 |                 |               |

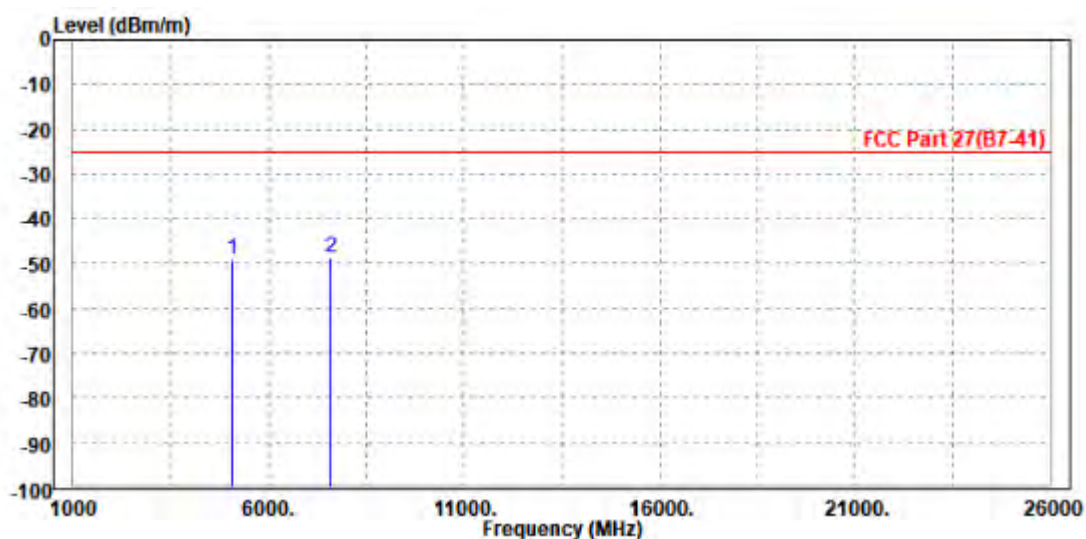
|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|----------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 3504.000 | -51.68 | -60.32     | -13.00     | -38.68     | 8.64   | Peak   | Vertical  |
| 2 PP | 5250.000 | -48.19 | -60.04     | -13.00     | -35.19     | 11.85  | Peak   | Vertical  |



LTE Band 7(Ant0) (UP):  
CHANNEL BANDWIDTH: 5MHz / QPSK

|                                                     |                  |                 |               |
|-----------------------------------------------------|------------------|-----------------|---------------|
| MODE                                                | TX channel 21100 | FREQUENCY RANGE | Above 1000MHz |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                           | Jace Hu          |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                  |                 |               |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|------|----------|--------|------------|------------|------------|--------|--------|------------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1    | 5075.000 | -49.06 | -60.23     | -25.00     | -24.06     | 11.17  | Peak   | Horizontal |
| 2 PP | 7605.000 | -48.63 | -63.15     | -25.00     | -23.63     | 14.52  | Peak   | Horizontal |

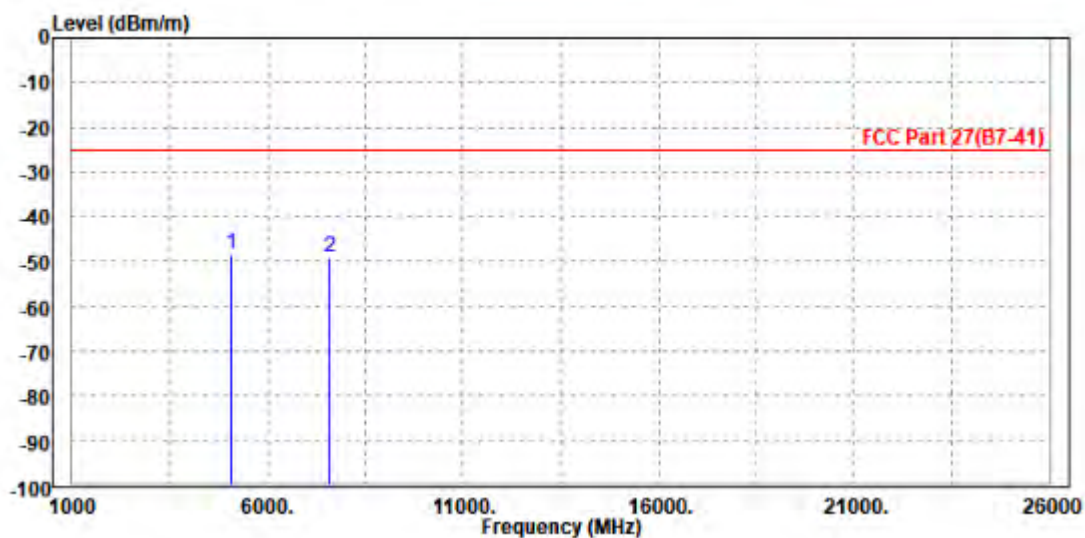




Test Report No.: W7L-P24050014RF07

|                                                   |                  |                 |               |
|---------------------------------------------------|------------------|-----------------|---------------|
| MODE                                              | TX channel 21100 | FREQUENCY RANGE | Above 1000MHz |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH  | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                         | Jace Hu          |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                  |                 |               |

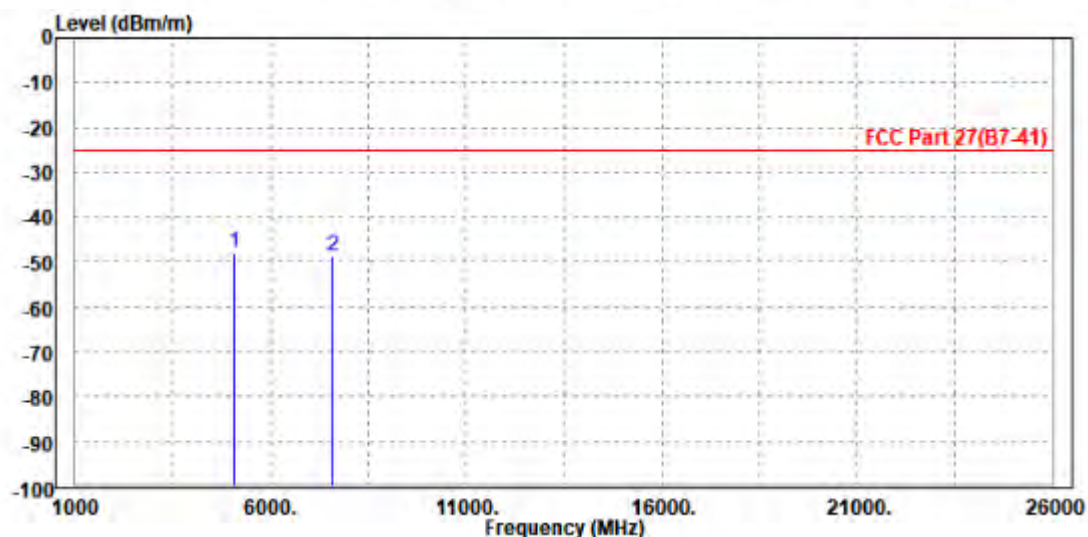
|   |    | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|----|----------|--------|------------|------------|------------|--------|--------|-----------|
|   |    | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP | 5070.000 | -48.37 | -59.88     | -25.00     | -23.37     | 11.51  | Peak   | Vertical  |
| 2 |    | 7600.000 | -49.19 | -62.64     | -25.00     | -24.19     | 13.45  | Peak   | Vertical  |



**CHANNEL BANDWIDTH: 10MHz / QPSK**

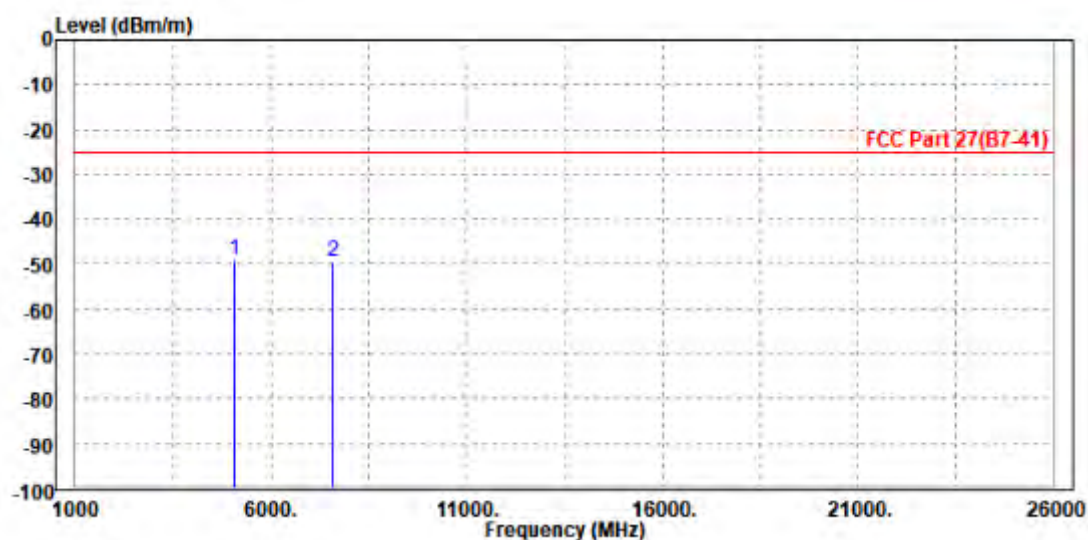
|                                                     |                  |                 |               |
|-----------------------------------------------------|------------------|-----------------|---------------|
| MODE                                                | TX channel 21100 | FREQUENCY RANGE | Above 1000MHz |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                           | Jace Hu          |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                  |                 |               |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|------|----------|--------|------------|------------|------------|--------|--------|------------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 PP | 5070.000 | -48.02 | -59.18     | -25.00     | -23.02     | 11.16  | Peak   | Horizontal |
| 2    | 7600.000 | -48.61 | -63.12     | -25.00     | -23.61     | 14.51  | Peak   | Horizontal |



|                                                   |                  |                 |               |
|---------------------------------------------------|------------------|-----------------|---------------|
| MODE                                              | TX channel 21100 | FREQUENCY RANGE | Above 1000MHz |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH  | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                         | Jace Hu          |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                  |                 |               |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP 5075.000 | -49.05 | -60.57     | -25.00     | -24.05     | 11.52  | Peak   | Vertical  |
| 2 | 7605.000    | -49.40 | -62.88     | -25.00     | -24.40     | 13.48  | Peak   | Vertical  |





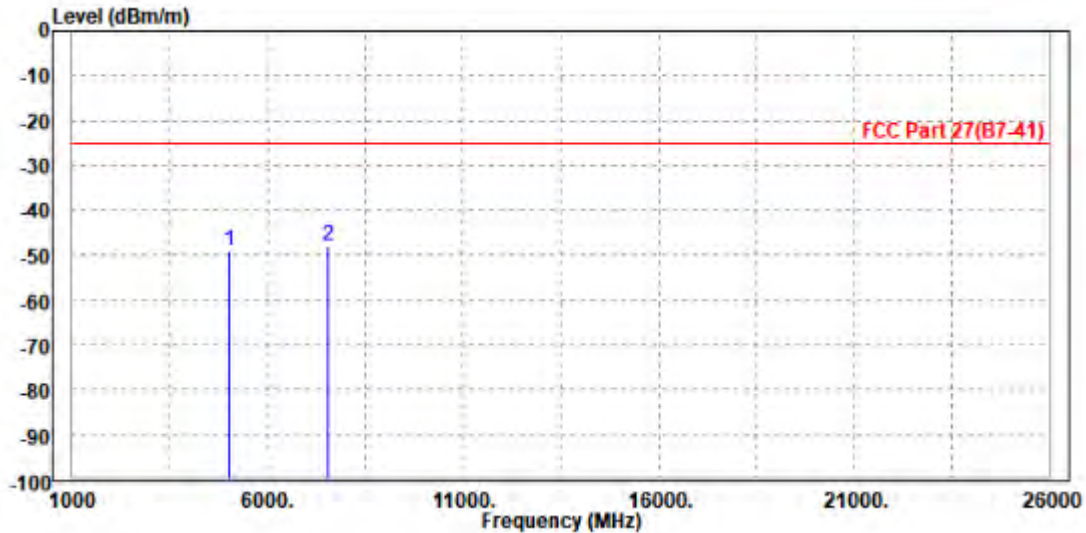
**BUREAU  
VERITAS**

Test Report No.: W7L-P24050014RF07

**CHANNEL BANDWIDTH: 15MHz / QPSK  
CH 20825**

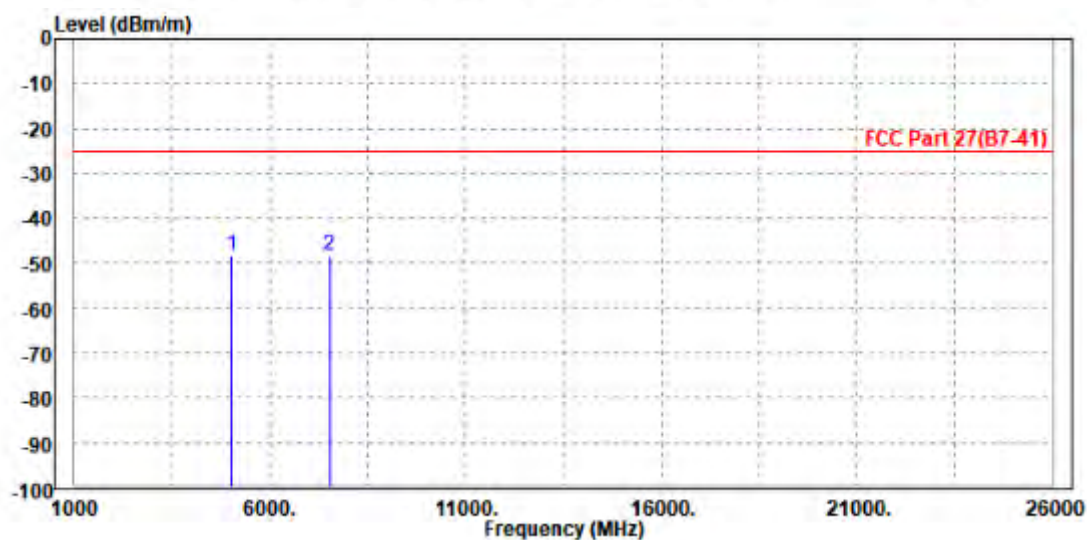
|                                                     |                  |                 |               |
|-----------------------------------------------------|------------------|-----------------|---------------|
| MODE                                                | TX channel 20825 | FREQUENCY RANGE | Above 1000MHz |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                           | Jace Hu          |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                  |                 |               |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|------|----------|--------|------------|------------|------------|--------|--------|------------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1    | 5015.000 | -48.90 | -59.98     | -25.00     | -23.90     | 11.08  | Peak   | Horizontal |
| 2 PP | 7525.000 | -47.91 | -62.29     | -25.00     | -22.91     | 14.38  | Peak   | Horizontal |



|                                                   |                  |                 |               |
|---------------------------------------------------|------------------|-----------------|---------------|
| MODE                                              | TX channel 20825 | FREQUENCY RANGE | Above 1000MHz |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH  | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                         | Jace Hu          |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                  |                 |               |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP 5025.000 | -48.21 | -59.63     | -25.00     | -23.21     | 11.42  | Peak   | Vertical  |
| 2 | 7522.500    | -48.36 | -61.48     | -25.00     | -23.36     | 13.12  | Peak   | Vertical  |





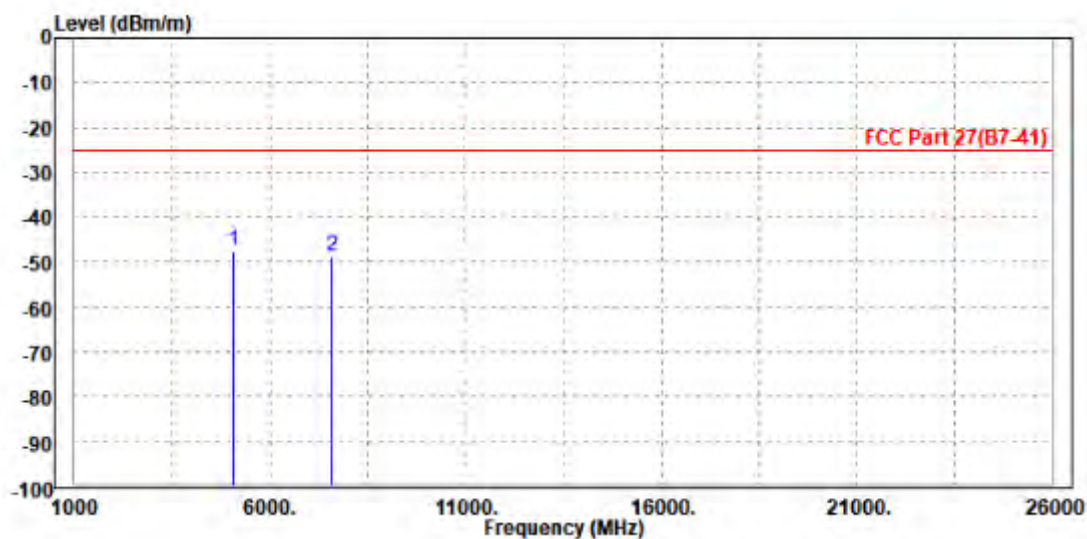
**BUREAU  
VERITAS**

Test Report No.: W7L-P24050014RF07

# CH21100

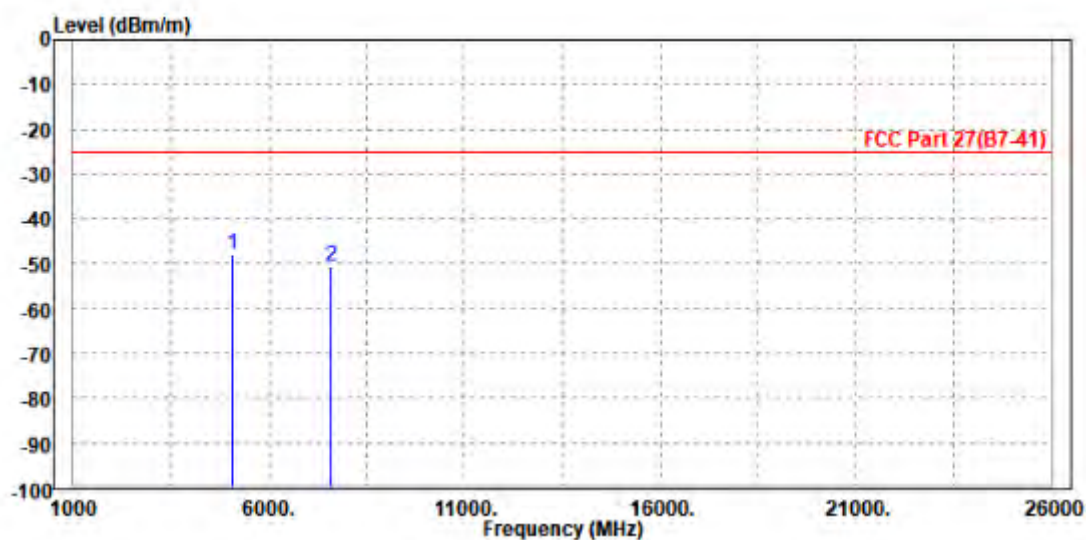
|                                                     |                  |                 |               |
|-----------------------------------------------------|------------------|-----------------|---------------|
| CH21100                                             |                  |                 |               |
| MODE                                                | TX channel 21100 | FREQUENCY RANGE | Above 1000MHz |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                           | Jace Hu          |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                  |                 |               |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|------|----------|--------|------------|------------|------------|--------|--------|------------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 PP | 5070.000 | -47.70 | -58.86     | -25.00     | -22.70     | 11.16  | Peak   | Horizontal |
| 2    | 7600.000 | -48.63 | -63.14     | -25.00     | -23.63     | 14.51  | Peak   | Horizontal |



|                                                   |                  |                 |               |
|---------------------------------------------------|------------------|-----------------|---------------|
| MODE                                              | TX channel 21100 | FREQUENCY RANGE | Above 1000MHz |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH  | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                         | Jace Hu          |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                  |                 |               |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP 5075.000 | -47.92 | -59.44     | -25.00     | -22.92     | 11.52  | Peak   | Vertical  |
| 2 | 7605.000    | -50.49 | -63.97     | -25.00     | -25.49     | 13.48  | Peak   | Vertical  |





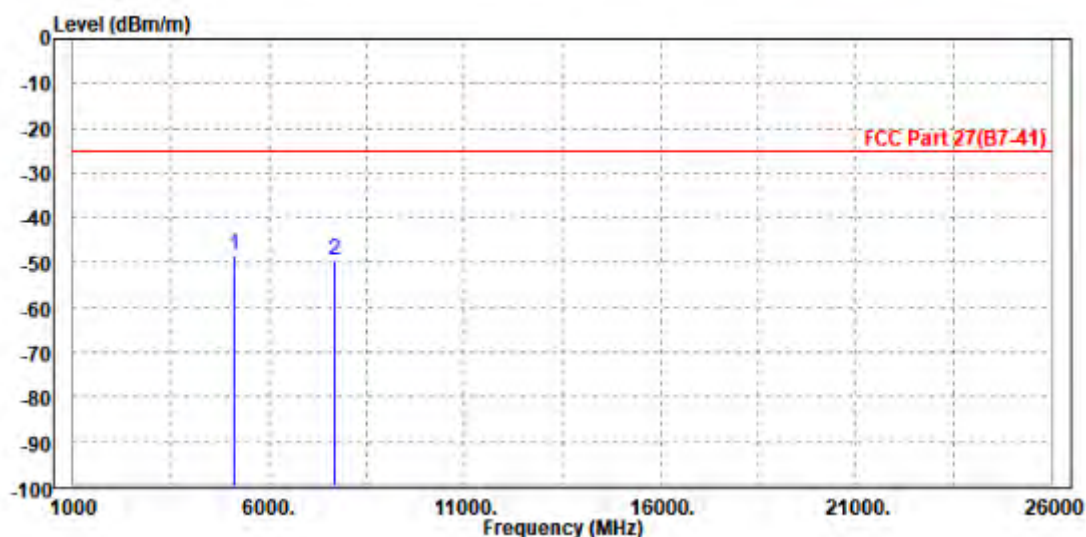
BUREAU  
VERITAS

Test Report No.: W7L-P24050014RF07

CH 21375

|                                                     |                  |                 |               |
|-----------------------------------------------------|------------------|-----------------|---------------|
| MODE                                                | TX channel 21375 | FREQUENCY RANGE | Above 1000MHz |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                           | Jace Hu          |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                  |                 |               |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|-------------|--------|------------|------------|------------|--------|--------|------------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | PP 5125.000 | -48.26 | -59.51     | -25.00     | -23.26     | 11.25  | Peak   | Horizontal |
| 2 | 7687.500    | -49.29 | -63.95     | -25.00     | -24.29     | 14.66  | Peak   | Horizontal |



|                                                   |                  |                 |               |
|---------------------------------------------------|------------------|-----------------|---------------|
| MODE                                              | TX channel 21375 | FREQUENCY RANGE | Above 1000MHz |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH  | INPUT POWER     | AC 120V/60HZ  |
| TESTED BY                                         | Jace Hu          |                 |               |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                  |                 |               |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|----------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 PP | 5125.000 | -48.23 | -59.84     | -25.00     | -23.23     | 11.61  | Peak   | Vertical  |
| 2    | 7700.000 | -50.28 | -64.17     | -25.00     | -25.28     | 13.89  | Peak   | Vertical  |

