



BUREAU VERITAS

Test Report No.: RF200927W002-2



ACCREDITED  
Certificate # 3939.01

# FCC TEST REPORT (PART 24)

|            |   |
|------------|---|
| Applicant: | Particle Industries, Inc                            |
| Address:   | 126 Post St, 4th floor, San Francisco, CA 94108 USA |

|                          |   |
|--------------------------|---|
| Manufacturer or Supplier | Particle Industries, Inc                            |
| Address                  | 126 Post St, 4th floor, San Francisco, CA 94108 USA |
| Product                  | Tracker One LTE M1                                  |
| Brand Name               | Particle  |
| Model Name               | ONE402M, ONE404, ONE402M-NB, ONE404M-NB             |
| FCC ID                   | 2AEMI-ONE40X  |
| Date of tests            | Aug. 08, 2020 ~ Sept. 10, 2020                      |

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

- FCC PART 24, Subpart E     FCC PART 2
- ANSI/TIA/EIA-603-D     ANSI/TIA/EIA-603-E     ANSI C63.26-2015

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

|   |  |
|---|--|
| Prepared by Alex Chen<br>Engineer / Mobile Department | Approved by Luke Lu<br>Manager / Mobile Department |
|   |  |
| Date: Oct. 29, 2020                                   | Date: Oct. 29, 2020                                |

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# TABLE OF CONTENTS

**RELEASE CONTROL RECORD ..... 4**

**1 SUMMARY OF TEST RESULTS ..... 5**

1.1 MEASUREMENT UNCERTAINTY ..... 5

1.2 TEST SITE AND INSTRUMENTS ..... 7

**2 GENERAL INFORMATION ..... 8**

2.1 GENERAL DESCRIPTION OF EUT ..... 8

2.2 CONFIGURATION OF SYSTEM UNDER TEST ..... 12

2.3 DESCRIPTION OF SUPPORT UNITS ..... 13

2.4 TEST ITEM AND TEST CONFIGURATION ..... 13

2.5 EUT OPERATING CONDITIONS ..... 15

2.6 GENERAL DESCRIPTION OF APPLIED STANDARDS ..... 16

**3 TEST TYPES AND RESULTS ..... 17**

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 ..... 18

3.2 FREQUENCY STABILITY MEASUREMENT ..... 32

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT ..... 32

3.2.2 TEST PROCEDURE ..... 32

3.2.3 TEST SETUP ..... 32

3.2.4 TEST RESULTS ..... 33

3.3 OCCUPIED BANDWIDTH MEASUREMENT ..... 34

3.3.1 TEST PROCEDURES ..... 34

3.3.2 TEST SETUP ..... 34

3.3.3 TEST RESULTS ..... 35

3.4 BAND EDGE MEASUREMENT ..... 36

3.4.1 LIMITS OF BAND EDGE MEASUREMENT ..... 36

3.4.2 TEST SETUP ..... 36

3.4.3 TEST PROCEDURES ..... 37

3.4.4 TEST RESULTS ..... 38

3.5 CONDUCTED SPURIOUS EMISSIONS ..... 39

3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT ..... 39

3.5.2 TEST PROCEDURE ..... 39

3.5.3 TEST SETUP ..... 39

3.5.4 TEST RESULTS ..... 40

3.6 RADIATED EMISSION MEASUREMENT ..... 41

3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT ..... 41

3.6.2 TEST PROCEDURES ..... 41

3.6.3 DEVIATION FROM TEST STANDARD ..... 41

3.6.4 TEST SETUP ..... 42

3.6.5 TEST RESULTS ..... 43

3.7 PEAK TO AVERAGE RATIO ..... 89

3.7.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT ..... 89

3.7.2 TEST SETUP ..... 89

3.7.3 TEST PROCEDURES ..... 89

3.7.4 TEST RESULTS ..... 90



**4 INFORMATION ON THE TESTING LABORATORIES..... 91**

**5 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB ..... 92**



## RELEASE CONTROL RECORD

| ISSUE NO.      | REASON FOR CHANGE  | DATE ISSUED    |
|----------------|--|----------------|
| RF200807W004-2 | Original release   | Sept. 10, 2020 |
| RF200927W002-2 | Based on the original report RF200807W004-2 change SW version and add two models ONE402M-NB, ONE404M-NB, which not affect RF function. So all the test data are copied from the original report. | Oct. 29, 2020  |



# 1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

| APPLIED STANDARD: FCC Part 24 & Part 2 |                                     |            |                                |
|--|-------------------------------------|------------|--------------------------------|
| STANDARD SECTION                       | TEST TYPE                           | RESULT     | REMARK                         |
| 2.1046<br>24.232                       | Equivalent Isotropic Radiated Power | Compliance | Meet the requirement of limit  |
| 2.1055<br>24.235                       | Frequency Stability                 | N.A        | See note 1                     |
| 2.1049<br>24.238(b)                    | Occupied Bandwidth                  | N.A        | See note 1                     |
| 24.232(d)                              | Peak to average ratio               | N.A        | See note 1                     |
| 24.238(b)                              | Band Edge Measurements              | N.A        | See note 1                     |
| 2.1051<br>24.238                       | Conducted Spurious Emissions        | N.A        | See note 1                     |
| 2.1053<br>24.238                       | Radiated Spurious Emissions         | Compliance | Meet the requirement of limit. |

\* REFER TO KDB 971168 D01 POWER MEAS LICENSE DIGITAL SYSTEMS V03R01.

Note: Note: The host Traker One LTE M1 (FCC ID: 2AEMI-ONE40X) is a new product with one certified module T402M/T404M (Module ID: 2AEMI-T40X ,Grant Date:09/16/2020) integrated. This module is a single modular and it was integrated into the host that not make any effect on RF performance.Other test data are reused from RF200520W003-2. More details please refer test report RF200520W003-2.



### 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                                | ± 76.97Hz   |
| Radiated emissions & Radiated Power (30MHz~1GMHz)  | ±4.98dB     |
| Radiated emissions & Radiated Power (1GMHz ~6GMHz) | ±4.70dB     |
| Radiated emissions (6GMHz ~18GMHz)                 | ±4.60dB     |
| Radiated emissions (18GMHz ~40GMHz)                | ±4.12dB     |
| Conducted emissions                                | ±4.01dB     |
| Occupied Channel Bandwidth                         | ±43.58KHz   |
| Conducted Output power                             | ±2.06dB     |
| Band Edge Measurements                             | ±4.70dB     |
| Peak to average ratio                              | ±0.76dB     |

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                  | Apr. 27,20  | Apr. 26,21  |
| EXA Signal Analyzer                   | KEYSIGHT     | N9010A-526                  | MY54510322                  | Feb. 26,20  | Feb. 25,21  |
| Bilog Antenna                         | ETS-LINDGREN | 3143B                       | 00161965                    | Mar. 27,20  | Mar. 26,21  |
| Horn Antenna (1GHz-18GHz)             | ETS-LINDGREN | 3117                        | 00168692                    | Mar. 27,20  | Mar. 26,21  |
| Horn Antenna (18GHz-40GHz)            | N/A          | QWH-SL-18-40-K-SG/QMS-00361 | 15433                       | Nov. 24, 19 | Nov. 23, 20 |
| Radio Communication Analyzer          | ANRITSU      | MT8820C                     | 6201465426                  | Feb. 27,20  | Feb. 26,21  |
| Signal Pre-Amplifier                  | EMSI         | EMC 9135                    | 980249                      | Jun. 02,20  | Jun. 01,21  |
| Signal Pre-Amplifier                  | EMSI         | EMC 012645B                 | 980257                      | Jun. 02,20  | Jun. 01,21  |
| Signal Pre-Amplifier                  | EMSI         | EMC 184045B                 | 980259                      | Apr. 30,20  | Apr. 29,21  |
| 3m Semi-anechoic Chamber              | ETS-LINDGREN | 9m*6m*6m                    | Euroshieldpn-CT0001143-1216 | May. 19,20  | May. 18,23  |
| Test Software                         | E3           | V 9.160323                  | N/A                         | N/A         | N/A         |
| Test Software                         | ADT          | ADT_Radiated_V7.6.15.9.2    | N/A                         | N/A         | N/A         |
| 10dB Attenuator                       | JFW/USA      | 50HF-010-SMA                | 1505                        | Jun. 03,20  | Jun. 02,21  |
| Power Meter                           | Anritsu      | ML2495A                     | 1506002                     | Feb. 26,20  | Feb. 25,21  |
| Power Sensor                          | Anritsu      | MA2411B                     | 1339352                     | Feb. 26,20  | Feb. 25,21  |
| Humid & Temp Programmable Tester      | Juyi         | ITH-120-45-CP-AR            | IAA1504-001                 | Jun. 02,20  | Jun. 01,21  |
| MXG Analog Microwave Signal Generator | KEYSIGHT     | N5183A                      | MY50143024                  | Mar. 11,20  | Mar. 10,21  |
| Power Divider                         | MCLI/USA     | PS2-15                      | 24880                       | N/A         | N/A         |

- NOTE:**
1. The calibration interval of the above test instruments is 12 months or 24 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>                                  | Tracker One LTE M1   |                       |        |
| <b>BRAND NAME</b>                               | Particle   |                       |        |
| <b>MODEL NAME</b>                               | ONE402M, ONE404, ONE402M-NB, ONE404M-NB  |                       |        |
| <b>NOMINAL VOLTAGE</b>                          | DC 3.7V from Battery or DC 5V from USB Host Unit or DC 12V from Adapter (support unit) |                       |        |
| <b>MODULATION TYPE</b>                          | <b>GPRS:</b> GMSK<br><b>EDGE:</b> 8PSK<br><b>LTE:</b> QPSK, 16QAM                      |                       |        |
| <b>FREQUENCY RANGE</b>                          | <b>GSM, GPRS, EDGE</b>   | 1850.2MHz ~ 1909.8MHz |        |
|   | <b>LTE Band 2<br/>Channel Bandwidth: 1.4MHz</b>  | 1850.7MHz ~ 1909.3MHz |        |
|   | <b>LTE Band 2<br/>Channel Bandwidth: 3MHz</b>  | 1851.5MHz ~ 1908.5MHz |        |
|   | <b>LTE Band 2<br/>Channel Bandwidth: 5MHz</b>  | 1852.5MHz ~ 1907.5MHz |        |
|   | <b>LTE Band 2<br/>Channel Bandwidth: 10MHz</b>   | 1855.0MHz ~ 1905.0MHz |        |
|   | <b>LTE Band 2<br/>Channel Bandwidth: 15MHz</b>   | 1857.5MHz ~ 1902.5MHz |        |
|   | <b>LTE Band 2<br/>Channel Bandwidth: 20MHz</b>   | 1860.0MHz ~ 1900.0MHz |        |
|   | <b>LTE Band 25<br/>Channel Bandwidth: 1.4MHz</b>                                       | 1850.7MHz ~ 1914.3MHz |        |
|   | <b>LTE Band 25<br/>Channel Bandwidth: 3MHz</b>   | 1851.5MHz ~ 1913.5MHz |        |
|   | <b>LTE Band 25<br/>Channel Bandwidth: 5MHz</b>   | 1852.5MHz ~ 1912.5MHz |        |
|   | <b>LTE Band 25<br/>Channel Bandwidth: 10MHz</b>  | 1855.0MHz ~ 1910.0MHz |        |
|   | <b>LTE Band 25<br/>Channel Bandwidth: 15MHz</b>  | 1857.5MHz ~ 1907.5MHz |        |
|   | <b>LTE Band 25<br/>Channel Bandwidth: 20MHz</b>  | 1860.0MHz ~ 1905.0MHz |        |
|   | <b>MAX. EIRP POWER</b>   | <b>GSM</b>            | 1633mW |
|   |  | <b>EDGE</b>           | 531mW  |
| <b>LTE Band 2<br/>Channel Bandwidth: 1.4MHz</b> |  | 372mW                 |        |
| <b>LTE Band 2<br/>Channel Bandwidth: 3MHz</b>   |  | 369mW                 |        |





|  |  |        |
|--|--|--------|
|  | <b>LTE Band 2</b><br><b>Channel Bandwidth: 5MHz</b>    | 370mW  |
|  | <b>LTE Band 2</b><br><b>Channel Bandwidth: 10MHz</b>   | 367mW  |
|  | <b>LTE Band 2</b><br><b>Channel Bandwidth: 15MHz</b>   | 373mW  |
|  | <b>LTE Band 2</b><br><b>Channel Bandwidth: 20MHz</b>   | 374mW  |
|  | <b>LTE Band 25</b><br><b>Channel Bandwidth: 1.4MHz</b> | 403 mW |
|  | <b>LTE Band 25</b><br><b>Channel Bandwidth: 3MHz</b>   | 402 mW |
|  | <b>LTE Band 25</b><br><b>Channel Bandwidth: 5MHz</b>   | 406 mW |
|  | <b>LTE Band 25</b><br><b>Channel Bandwidth: 10MHz</b>  | 403 mW |
|  | <b>LTE Band 25</b><br><b>Channel Bandwidth: 15MHz</b>  | 403 mW |
|  | <b>LTE Band 25</b><br><b>Channel Bandwidth: 20MHz</b>  | 407 mW |



|                            |  |  |
|----------------------------|--|--|
| <b>EMISSION DESIGNATOR</b> | <b>GSM</b>                                       | 246KGXW  |
|                            | <b>EDGE</b>                                      | 248KG7W  |
|                            | <b>LTE Band 2<br/>Channel Bandwidth: 1.4MHz</b>  | QPSK: 1M11G7D<br>16QAM: 948KW7D  |
|                            | <b>LTE Band 2<br/>Channel Bandwidth: 3MHz</b>    | QPSK: 1M16G7D<br>16QAM: 985KW7D  |
|                            | <b>LTE Band 2<br/>Channel Bandwidth: 5MHz</b>    | QPSK: 1M17G7D<br>16QAM: 1M01W7D  |
|                            | <b>LTE Band 2<br/>Channel Bandwidth: 10MHz</b>   | QPSK: 1M19G7D<br>16QAM: 1M19W7D  |
|                            | <b>LTE Band 2<br/>Channel Bandwidth: 15MHz</b>   | QPSK: 1M22G7D<br>16QAM: 1M90W7D  |
|                            | <b>LTE Band 2<br/>Channel Bandwidth: 20MHz</b>   | QPSK: 1M25G7D<br>16QAM: 1M15W7D  |
|                            | <b>LTE Band 25<br/>Channel Bandwidth: 1.4MHz</b> | QPSK: 1M11G7D<br>16QAM: 951KW7D  |
|                            | <b>LTE Band 25<br/>Channel Bandwidth: 3MHz</b>   | QPSK: 1M16G7D<br>16QAM: 992KW7D  |
|                            | <b>LTE Band 25<br/>Channel Bandwidth: 5MHz</b>   | QPSK: 1M14G7D<br>16QAM: 975KW7D  |
|                            | <b>LTE Band 25<br/>Channel Bandwidth: 10MHz</b>  | QPSK: 1M18G7D<br>16QAM: 1M05W7D  |
|                            | <b>LTE Band 25<br/>Channel Bandwidth: 15MHz</b>  | QPSK: 1M20G7D<br>16QAM: 1M06W7D  |
|                            | <b>LTE Band 25<br/>Channel Bandwidth: 20MHz</b>  | QPSK: 1M21G7D<br>16QAM: 1M11W7D  |
|                            | <b>ANTENNA TYPE</b>                              | External Antenna with 2.27dBi gain for GSM 1900/ LTE Band 2/ LTE Band 25 |
| <b>HW VERSION</b>          | V1.1   |  |
| <b>SW VERSION</b>          | V1.5.4   |  |
| <b>I/O PORTS</b>           | Refer to user's manual                           |  |
| <b>CABLE SUPPLIED</b>      | USB cable: non-shielded, detachable,2meter       |  |



**NOTE:**

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

| MODULATION MODE | TX FUNCTION |
|-----------------|-------------|
| GSM/GPRS/EDGE   | 1TX/1RX     |
| LTE             | 1TX/1RX     |

3. The EUT was powered by the following Battery:

| BATTERY       |                                      |
|---------------|--------------------------------------|
| BRAND:        | Zhaoneng                             |
| MODEL:        | 113450                               |
| MANUFACTURER  | Zhaoneng Battery Industrial Co., Ltd |
| POWER RATING: | 3.7V, 2000mAh                        |

4. The EUT matched the following USB cable:

| USB CABLE    |                    |
|--------------|--------------------|
| BRAND:       | KAWEEI             |
| MODEL:       | CBUSB31-AM-CM-2000 |
| SIGNAL LINE: | 2.0 METER          |

5. The schematic and PCB of each model is same, and the HW&SW used is the same. The only difference is ONE402M uses eSIM of Kore, ONE404M uses eSIM of Twilio. At the same time, we add two product models on v1.1, ONE402M-NB, ONE404M-NB, please see the table below for the differences of different model.

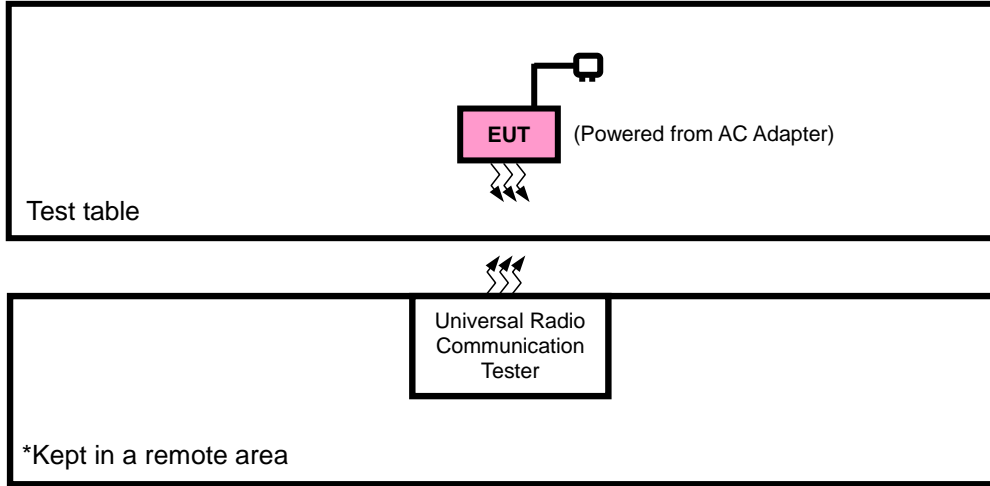
| Product name | e-SIM company | Built-in LiPo battery |
|--------------|---------------|-----------------------|
| ONE402M      | Kore          | Yes                   |
| ONE404M      | Twilio        | Yes                   |
| ONE402M-NB   | Kore          | No                    |
| ONE404M-NB   | Twilio        | No                    |

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



## 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 in EIRP and radiated emission was found when positioned on X-plane for GSM/EDGE/WCDMA/ LTE. Following channel(s) was (were) selected for the final test as listed below:

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

### GSM MODE

| EUT CONFIGURE MODE | TEST ITEM         | AVAILABLE CHANNEL | TESTED CHANNEL | MODE      |
|--------------------|-------------------|-------------------|----------------|-----------|
| A                  | EIRP              | 512 to 810        | 512, 661, 810  | GSM, EDGE |
| A                  | RADIATED EMISSION | 512 to 810        | 512, 661, 810  | GSM, EDGE |



LTE BAND 2

| EUT CONFIGURE MODE | TEST ITEM         | AVAILABLE CHANNEL | TESTED CHANNEL      | CHANNEL BANDWIDTH | MODULATION | MODE               |
|--------------------|-------------------|-------------------|---------------------|-------------------|------------|--------------------|
| A                  | EIRP              | 18607 to 19193    | 18607, 18900, 19193 | 1.4MHz            | QPSK,16QAM | 1 RB / 0 RB Offset |
|                    |                   | 18615 to 19185    | 18615, 18900, 19185 | 3MHz              | QPSK,16QAM | 1 RB / 0 RB Offset |
|                    |                   | 18625 to 19175    | 18625, 18900, 19175 | 5MHz              | QPSK,16QAM | 1 RB / 0 RB Offset |
|                    |                   | 18650 to 19150    | 18650, 18900, 19150 | 10MHz             | QPSK,16QAM | 1 RB / 0 RB Offset |
|                    |                   | 18675 to 19125    | 18675, 18900, 19125 | 15MHz             | QPSK,16QAM | 1 RB / 0 RB Offset |
|                    |                   | 18700 to 19100    | 18700, 18900, 19100 | 20MHz             | QPSK,16QAM | 1 RB / 0 RB Offset |
| A                  | RADIATED EMISSION | 18607 to 19193    | 18900               | 1.4MHz            | QPSK       | 1 RB / 0 RB Offset |
|                    |                   | 18615 to 19185    | 18900               | 3MHz              | QPSK       | 1 RB / 0 RB Offset |
|                    |                   | 18625 to 19175    | 18900               | 5MHz              | QPSK       | 1 RB / 0 RB Offset |
|                    |                   | 18650 to 19150    | 18650, 18900, 19150 | 10MHz             | QPSK       | 1 RB / 0 RB Offset |
|                    |                   | 18675 to 19125    | 18900               | 15MHz             | QPSK       | 1 RB / 0 RB Offset |
|                    |                   | 18700 to 19100    | 18900               | 20MHz             | QPSK       | 1 RB / 0 RB Offset |



LTE BAND 25

| EUT CONFIGURE MODE | TEST ITEM         | AVAILABLE CHANNEL | TESTED CHANNEL      | CHANNEL BANDWIDTH | MODULATION  | MODE               |
|--------------------|-------------------|-------------------|---------------------|-------------------|-------------|--------------------|
| A                  | EIRP              | 26047 to 26683    | 26047, 26365, 26683 | 1.4MHz            | QPSK, 16QAM | 1 RB / 0 RB Offset |
|                    |                   | 26055 to 26675    | 26055, 26365, 26675 | 3MHz              | QPSK, 16QAM | 1 RB / 0 RB Offset |
|                    |                   | 26065 to 26665    | 26065, 26365, 26665 | 5MHz              | QPSK, 16QAM | 1 RB / 0 RB Offset |
|                    |                   | 26090 to 26640    | 26090, 26365, 26640 | 10MHz             | QPSK, 16QAM | 1 RB / 0 RB Offset |
|                    |                   | 26115 to 26615    | 26115, 26365, 26615 | 15MHz             | QPSK, 16QAM | 1 RB / 0 RB Offset |
|                    |                   | 26140 to 26590    | 26140, 26365, 26590 | 20MHz             | QPSK, 16QAM | 1 RB / 0 RB Offset |
| A                  | RADIATED EMISSION | 26047 to 26683    | 26365               | 1.4MHz            | QPSK        | 1 RB / 0 RB Offset |
|                    |                   | 26055 to 26675    | 26365               | 3MHz              | QPSK        | 1 RB / 0 RB Offset |
|                    |                   | 26065 to 26665    | 26065, 26365, 26665 | 5MHz              | QPSK        | 1 RB / 0 RB Offset |
|                    |                   | 26090 to 26640    | 26365               | 10MHz             | QPSK        | 1 RB / 0 RB Offset |
|                    |                   | 26115 to 26615    | 26365               | 15MHz             | QPSK        | 1 RB / 0 RB Offset |
|                    |                   | 26140 to 26590    | 26365               | 20MHz             | QPSK        | 1 RB / 0 RB Offset |

TEST CONDITION:

| TEST ITEM         | ENVIRONMENTAL CONDITIONS | INPUT POWER              | TESTED BY |
|-------------------|--------------------------|--------------------------|-----------|
| EIRP              | 23deg. C, 70%RH          | DC 5V from USB Host Unit | Jacky Liu |
| RADIATED EMISSION | 23deg. C, 70%RH          | DC 5V from USB Host Unit | Jacky Liu |

2.5 EUT OPERATING CONDITIONS

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency



## 2.6 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 24**

**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

Mobile and portable stations are limited to 2 watts EIRP.

##### 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:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_{\text{T}} - L_{\text{c}}$$

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;

$G_{\text{T}}$  = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

$L_{\text{c}}$  = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

###### **CONDUCTED POWER MEASUREMENT:**

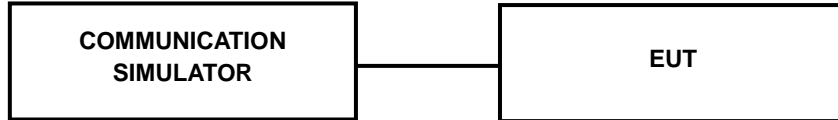
The EUT was set up for the maximum power with WCDMA link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.



### 3.1.3 TEST SETUP

EIRP / ERP Measurement:

CONDUCTED POWER MEASUREMENT:



### 3.1.4 TEST RESULTS

#### CONDUCTED OUTPUT POWER (dBm)

| Band                  | GSM1900 |       |        | Max. Tune-up Power |
|-----------------------|---------|-------|--------|--------------------|
|                       | Channel | 512   | 661    |                    |
| Frequency             | 1850.2  | 1880  | 1909.8 |                    |
| GPRS (GMSK, 1Tx-slot) | 29.76   | 29.80 | 29.86  | 30.0               |
| GPRS (GMSK, 2Tx-slot) | 29.68   | 29.70 | 29.78  | 30.0               |
| GPRS (GMSK, 3Tx-slot) | 29.42   | 29.45 | 29.52  | 30.0               |
| GPRS (GMSK, 4Tx-slot) | 29.36   | 29.31 | 29.43  | 30.0               |
| EDGE (GMSK, 1Tx-slot) | 24.87   | 24.91 | 24.98  | 25.5               |
| EDGE (GMSK, 2Tx-slot) | 24.75   | 24.80 | 24.86  | 25.5               |
| EDGE (GMSK, 3Tx-slot) | 24.49   | 24.40 | 24.52  | 25.0               |
| EDGE (GMSK, 4Tx-slot) | 24.42   | 24.35 | 24.46  | 25.0               |



| Band/BW | Modulation | RB Size | RB Offset | Low CH<br>18607            | Mid CH<br>18900       | High CH<br>19193           | Tune Up |
|---------|------------|---------|-----------|----------------------------|-----------------------|----------------------------|---------|
|         |            |         |           | Frequency<br>1850.7<br>MHz | Frequency<br>1880 MHz | Frequency<br>1909.3<br>MHz |         |
| 2/ 1.4  | QPSK       | 1       | 0         | 23.38                      | 23.31                 | 23.32                      | 23.5    |
|         |            | 1       | 5         | 23.36                      | 23.22                 | 23.28                      |         |
|         |            | 3       | 0         | 23.43                      | 23.27                 | 23.31                      | 23.5    |
|         |            | 3       | 3         | 23.32                      | 23.19                 | 23.27                      |         |
|         |            | 6       | 0         | 23.38                      | 23.26                 | 23.22                      | 23.5    |
|         | 16QAM      | 1       | 0         | 22.90                      | 22.77                 | 22.81                      | 23.5    |
|         |            | 1       | 5         | 22.90                      | 22.73                 | 22.81                      |         |
|         |            | 3       | 0         | 23.02                      | 22.88                 | 22.97                      | 23.5    |
|         |            | 3       | 3         | 23.06                      | 22.94                 | 22.96                      |         |
|         |            | 6       | 0         | 23.16                      | 23.12                 | 23.10                      | 23.5    |

| Band/BW | Modulation | RB Size | RB Offset | Low CH<br>18615            | Mid CH<br>18900       | High CH<br>19185           | Tune Up |
|---------|------------|---------|-----------|----------------------------|-----------------------|----------------------------|---------|
|         |            |         |           | Frequency<br>1851.5<br>MHz | Frequency<br>1880 MHz | Frequency<br>1908.5<br>MHz |         |
| 2/ 3    | QPSK       | 1       | 0         | 23.40                      | 23.33                 | 23.31                      | 23.5    |
|         |            | 1       | 5         | 23.32                      | 23.23                 | 23.28                      |         |
|         |            | 3       | 0         | 23.39                      | 23.27                 | 23.31                      | 23.5    |
|         |            | 3       | 3         | 23.31                      | 23.22                 | 23.27                      |         |
|         |            | 6       | 0         | 23.31                      | 23.26                 | 23.24                      | 23.5    |
|         | 16QAM      | 1       | 0         | 22.87                      | 22.83                 | 22.84                      | 23.5    |
|         |            | 1       | 5         | 22.87                      | 22.76                 | 22.79                      |         |
|         |            | 3       | 0         | 23.05                      | 22.88                 | 22.97                      | 23.5    |
|         |            | 3       | 3         | 23.02                      | 22.95                 | 22.96                      |         |
|         |            | 6       | 0         | 23.21                      | 23.07                 | 23.13                      | 23.5    |



| Band/BW | Modulation | RB Size | RB Offset | Low CH<br>18625            | Mid CH<br>18900       | High CH<br>19175           | Tune Up |
|---------|------------|---------|-----------|----------------------------|-----------------------|----------------------------|---------|
|         |            |         |           | Frequency<br>1852.5<br>MHz | Frequency<br>1880 MHz | Frequency<br>1907.5<br>MHz |         |
| 2/ 5    | QPSK       | 1       | 0         | 23.41                      | 23.28                 | 23.32                      | 23.5    |
|         |            | 1       | 5         | 23.37                      | 23.20                 | 23.28                      |         |
|         |            | 3       | 0         | 23.40                      | 23.26                 | 23.35                      | 23.5    |
|         |            | 3       | 3         | 23.34                      | 23.22                 | 23.24                      |         |
|         |            | 6       | 0         | 23.31                      | 23.27                 | 23.25                      | 23.5    |
|         | 16QAM      | 1       | 0         | 22.88                      | 22.79                 | 22.84                      | 23.5    |
|         |            | 1       | 5         | 22.84                      | 22.79                 | 22.78                      |         |
|         |            | 3       | 0         | 23.05                      | 22.88                 | 22.96                      | 23.5    |
|         |            | 3       | 3         | 23.02                      | 22.93                 | 22.93                      |         |
|         |            | 6       | 0         | 23.18                      | 23.11                 | 23.09                      | 23.5    |

| Band/BW | Modulation | RB Size | RB Offset | Low CH<br>18650       | Mid CH<br>18900       | High CH<br>19150      | Tune Up |
|---------|------------|---------|-----------|-----------------------|-----------------------|-----------------------|---------|
|         |            |         |           | Frequency<br>1855 MHz | Frequency<br>1880 MHz | Frequency<br>1905 MHz |         |
| 2/ 10   | QPSK       | 1       | 0         | 23.38                 | 23.31                 | 23.32                 | 23.5    |
|         |            | 1       | 5         | 23.37                 | 23.20                 | 23.29                 |         |
|         |            | 3       | 0         | 23.37                 | 23.30                 | 23.31                 | 23.5    |
|         |            | 3       | 3         | 23.35                 | 23.21                 | 23.27                 |         |
|         |            | 6       | 0         | 23.37                 | 23.21                 | 23.25                 | 23.5    |
|         | 16QAM      | 1       | 0         | 22.88                 | 22.76                 | 22.80                 | 23.5    |
|         |            | 1       | 5         | 22.89                 | 22.75                 | 22.81                 |         |
|         |            | 3       | 0         | 23.05                 | 22.89                 | 22.93                 | 23.5    |
|         |            | 3       | 3         | 23.04                 | 22.91                 | 22.99                 |         |
|         |            | 6       | 0         | 23.22                 | 23.05                 | 23.14                 | 23.5    |



| Band/BW | Modulation | RB Size | RB Offset | Low CH<br>18675            | Mid CH<br>18900       | High CH<br>19125           | Tune Up |
|---------|------------|---------|-----------|----------------------------|-----------------------|----------------------------|---------|
|         |            |         |           | Frequency<br>1857.5<br>MHz | Frequency<br>1880 MHz | Frequency<br>1902.5<br>MHz |         |
| 2/ 15   | QPSK       | 1       | 0         | 23.45                      | 23.31                 | 23.29                      | 23.5    |
|         |            | 1       | 5         | 23.35                      | 23.25                 | 23.24                      |         |
|         |            | 3       | 0         | 23.43                      | 23.33                 | 23.32                      | 23.5    |
|         |            | 3       | 3         | 23.32                      | 23.22                 | 23.28                      |         |
|         |            | 6       | 0         | 23.38                      | 23.26                 | 23.25                      | 23.5    |
|         | 16QAM      | 1       | 0         | 22.92                      | 22.83                 | 22.80                      | 23.5    |
|         |            | 1       | 5         | 22.88                      | 22.76                 | 22.81                      |         |
|         |            | 3       | 0         | 23.01                      | 22.94                 | 22.95                      | 23.5    |
|         |            | 3       | 3         | 23.08                      | 22.91                 | 23.00                      |         |
|         |            | 6       | 0         | 23.16                      | 23.09                 | 23.10                      | 23.5    |

| Band/BW | Modulation | RB Size | RB Offset | Low CH<br>18700       | Mid CH<br>18900       | High CH<br>19100      | Tune Up |
|---------|------------|---------|-----------|-----------------------|-----------------------|-----------------------|---------|
|         |            |         |           | Frequency<br>1860 MHz | Frequency<br>1880 MHz | Frequency<br>1900 MHz |         |
| 2/ 20   | QPSK       | 1       | 0         | 23.46                 | 23.35                 | 23.37                 | 23.5    |
|         |            | 1       | 5         | 23.39                 | 23.28                 | 23.30                 |         |
|         |            | 3       | 0         | 23.45                 | 23.34                 | 23.36                 | 23.5    |
|         |            | 3       | 3         | 23.38                 | 23.27                 | 23.29                 |         |
|         |            | 6       | 0         | 23.39                 | 23.28                 | 23.30                 | 23.5    |
|         | 16QAM      | 1       | 0         | 22.95                 | 22.84                 | 22.86                 | 23.5    |
|         |            | 1       | 5         | 22.92                 | 22.81                 | 22.83                 |         |
|         |            | 3       | 0         | 23.07                 | 22.96                 | 22.98                 | 23.5    |
|         |            | 3       | 3         | 23.10                 | 22.99                 | 23.01                 |         |
|         |            | 6       | 0         | 23.24                 | 23.13                 | 23.15                 | 23.5    |



| Band/BW | Modulation | RB Size | RB Offset | 26047 CH   | 26365 CH   | 26683 CH   | Tune Up |
|---------|------------|---------|-----------|------------|------------|------------|---------|
|         |            |         |           | 1850.7 MHz | 1882.5 MHz | 1914.3 MHz |         |
| 25/ 1.4 | QPSK       | 1       | 0         | 23.53      | 23.59      | 23.78      | 24.5    |
|         |            | 1       | 5         | 23.53      | 23.52      | 23.76      |         |
|         |            | 3       | 0         | 23.58      | 23.55      | 23.77      | 24.5    |
|         |            | 3       | 3         | 23.49      | 23.49      | 23.75      |         |
|         |            | 6       | 0         | 23.52      | 23.53      | 23.67      | 24.5    |
|         | 16QAM      | 1       | 0         | 23.08      | 23.08      | 23.30      | 24.5    |
|         |            | 1       | 5         | 23.02      | 22.98      | 23.24      |         |
|         |            | 3       | 0         | 23.27      | 23.26      | 23.53      | 24.5    |
|         |            | 3       | 3         | 23.25      | 23.26      | 23.46      |         |
|         |            | 6       | 0         | 23.44      | 23.53      | 23.69      | 24.5    |

| Band/BW | Modulation | RB Size | RB Offset | 26055 CH   | 26365 CH   | 26675 CH   | Tune Up |
|---------|------------|---------|-----------|------------|------------|------------|---------|
|         |            |         |           | 1851.5 MHz | 1882.5 MHz | 1913.5 MHz |         |
| 25/ 3   | QPSK       | 1       | 0         | 23.55      | 23.61      | 23.77      | 24.5    |
|         |            | 1       | 5         | 23.49      | 23.53      | 23.76      |         |
|         |            | 3       | 0         | 23.54      | 23.55      | 23.77      | 24.5    |
|         |            | 3       | 3         | 23.48      | 23.52      | 23.75      |         |
|         |            | 6       | 0         | 23.45      | 23.53      | 23.69      | 24.5    |
|         | 16QAM      | 1       | 0         | 23.05      | 23.14      | 23.33      | 24.5    |
|         |            | 1       | 5         | 22.99      | 23.01      | 23.22      |         |
|         |            | 3       | 0         | 23.30      | 23.26      | 23.53      | 24.5    |
|         |            | 3       | 3         | 23.21      | 23.27      | 23.46      |         |
|         |            | 6       | 0         | 23.49      | 23.48      | 23.72      | 24.5    |



| Band/BW | Modulation | RB Size | RB Offset | 26065 CH   | 26365 CH   | 26665 CH   | Tune Up |
|---------|------------|---------|-----------|------------|------------|------------|---------|
|         |            |         |           | 1852.5 MHz | 1882.5 MHz | 1912.5 MHz |         |
| 25/ 5   | QPSK       | 1       | 0         | 23.56      | 23.56      | 23.78      | 24.5    |
|         |            | 1       | 5         | 23.54      | 23.50      | 23.76      |         |
|         |            | 3       | 0         | 23.55      | 23.54      | 23.81      | 24.5    |
|         |            | 3       | 3         | 23.51      | 23.52      | 23.72      |         |
|         |            | 6       | 0         | 23.45      | 23.54      | 23.70      | 24.5    |
|         | 16QAM      | 1       | 0         | 23.06      | 23.10      | 23.33      | 24.5    |
|         |            | 1       | 5         | 22.96      | 23.04      | 23.21      |         |
|         |            | 3       | 0         | 23.30      | 23.26      | 23.52      | 24.5    |
|         |            | 3       | 3         | 23.21      | 23.25      | 23.43      |         |
|         |            | 6       | 0         | 23.46      | 23.52      | 23.68      | 24.5    |

| Band/BW | Modulation | RB Size | RB Offset | 26090 CH | 26365 CH   | 26640 CH | Tune Up |
|---------|------------|---------|-----------|----------|------------|----------|---------|
|         |            |         |           | 1855 MHz | 1882.5 MHz | 1910 MHz |         |
| 25/ 10  | QPSK       | 1       | 0         | 23.53    | 23.59      | 23.78    | 24.5    |
|         |            | 1       | 5         | 23.54    | 23.50      | 23.77    |         |
|         |            | 3       | 0         | 23.52    | 23.58      | 23.77    | 24.5    |
|         |            | 3       | 3         | 23.52    | 23.51      | 23.75    |         |
|         |            | 6       | 0         | 23.51    | 23.48      | 23.70    | 24.5    |
|         | 16QAM      | 1       | 0         | 23.06    | 23.07      | 23.29    | 24.5    |
|         |            | 1       | 5         | 23.01    | 23.00      | 23.24    |         |
|         |            | 3       | 0         | 23.30    | 23.27      | 23.49    | 24.5    |
|         |            | 3       | 3         | 23.23    | 23.23      | 23.49    |         |
|         |            | 6       | 0         | 23.50    | 23.46      | 23.73    | 24.5    |



| Band/BW | Modulation | RB Size | RB Offset | 26115 CH   | 26365 CH   | 26615 CH   | Tune Up |
|---------|------------|---------|-----------|------------|------------|------------|---------|
|         |            |         |           | 1857.5 MHz | 1882.5 MHz | 1907.5 MHz |         |
| 25/ 15  | QPSK       | 1       | 0         | 23.60      | 23.59      | 23.75      | 24.5    |
|         |            | 1       | 5         | 23.52      | 23.55      | 23.72      |         |
|         |            | 3       | 0         | 23.58      | 23.61      | 23.78      | 24.5    |
|         |            | 3       | 3         | 23.49      | 23.52      | 23.76      |         |
|         |            | 6       | 0         | 23.52      | 23.53      | 23.70      | 24.5    |
|         | 16QAM      | 1       | 0         | 23.10      | 23.14      | 23.29      | 24.5    |
|         |            | 1       | 5         | 23.00      | 23.01      | 23.24      |         |
|         |            | 3       | 0         | 23.26      | 23.32      | 23.51      | 24.5    |
|         |            | 3       | 3         | 23.27      | 23.23      | 23.50      |         |
|         |            | 6       | 0         | 23.44      | 23.50      | 23.69      | 24.5    |

| Band/BW | Modulation | RB Size | RB Offset | 26140 CH | 26365 CH   | 26590 CH | Tune Up |
|---------|------------|---------|-----------|----------|------------|----------|---------|
|         |            |         |           | 1860 MHz | 1882.5 MHz | 1905 MHz |         |
| 25/ 20  | QPSK       | 1       | 0         | 23.61    | 23.63      | 23.83    | 24.5    |
|         |            | 1       | 5         | 23.56    | 23.58      | 23.78    |         |
|         |            | 3       | 0         | 23.60    | 23.62      | 23.82    | 24.5    |
|         |            | 3       | 3         | 23.55    | 23.57      | 23.77    |         |
|         |            | 6       | 0         | 23.53    | 23.55      | 23.75    | 24.5    |
|         | 16QAM      | 1       | 0         | 23.13    | 23.15      | 23.35    | 24.5    |
|         |            | 1       | 5         | 23.04    | 23.06      | 23.26    |         |
|         |            | 3       | 0         | 23.32    | 23.34      | 23.54    | 24.5    |
|         |            | 3       | 3         | 23.29    | 23.31      | 23.51    |         |
|         |            | 6       | 0         | 23.52    | 23.54      | 23.74    | 24.5    |





**EIRP POWER (dBm)**

**GSM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>C</sub> (dB) | EIRP (dBm) | EIRP (mW)      | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|----------------|-----------|
| 512     | 1850.2          | 29.76                 | 2.27                                | 32.03      | 1595.88        | 2         |
| 661     | 1880.0          | 29.80                 | 2.27                                | 32.07      | 1610.65        | 2         |
| 810     | 1909.8          | 29.86                 | 2.27                                | 32.13      | <b>1633.05</b> | 2         |

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

**EDGE**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>C</sub> (dB) | EIRP (dBm) | EIRP (mW)     | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|---------------|-----------|
| 512     | 1850.2          | 24.87                 | 2.27                                | 27.14      | 517.61        | 2         |
| 661     | 1880.0          | 24.91                 | 2.27                                | 27.18      | 522.4         | 2         |
| 810     | 1909.8          | 24.98                 | 2.27                                | 27.25      | <b>530.88</b> | 2         |

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



**LTE BAND 2**

**CHANNEL BANDWIDTH: 1.4MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>C</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 18607   | 1850.7          | 23.43                 | 2.27                                | 25.70      | 371.54    | 2         |
| 18900   | 1880.0          | 23.31                 | 2.27                                | 25.58      | 361.41    | 2         |
| 19193   | 1908.3          | 23.32                 | 2.27                                | 25.59      | 362.24    | 2         |

**CHANNEL BANDWIDTH: 1.4MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>C</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 18607   | 1850.7          | 23.16                 | 2.27                                | 25.43      | 349.14    | 2         |
| 18900   | 1880.0          | 23.12                 | 2.27                                | 25.39      | 345.94    | 2         |
| 19193   | 1908.3          | 23.10                 | 2.27                                | 25.37      | 344.35    | 2         |

**CHANNEL BANDWIDTH: 3MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>C</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 18615   | 1851.5          | 23.40                 | 2.27                                | 25.67      | 368.98    | 2         |
| 18900   | 1880.0          | 23.33                 | 2.27                                | 25.60      | 363.08    | 2         |
| 19185   | 1908.5          | 23.31                 | 2.27                                | 25.58      | 361.41    | 2         |

**CHANNEL BANDWIDTH: 3MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>C</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 18615   | 1851.5          | 23.21                 | 2.27                                | 25.48      | 353.18    | 2         |
| 18900   | 1880.0          | 23.07                 | 2.27                                | 25.34      | 341.98    | 2         |
| 19185   | 1908.5          | 23.13                 | 2.27                                | 25.40      | 346.74    | 2         |



**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) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 18625   | 1852.5          | 23.41                 | 2.27                                | 25.68      | 369.83    | 2         |
| 18900   | 1880.0          | 23.28                 | 2.27                                | 25.55      | 358.92    | 2         |
| 19175   | 1907.5          | 23.35                 | 2.27                                | 25.62      | 364.75    | 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) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 18625   | 1852.5          | 23.18                 | 2.27                                | 25.45      | 350.75    | 2         |
| 18900   | 1880.0          | 23.11                 | 2.27                                | 25.38      | 345.14    | 2         |
| 19175   | 1907.5          | 23.09                 | 2.27                                | 25.36      | 343.56    | 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) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 18650   | 1855.0          | 23.38                 | 2.27                                | 25.65      | 367.28    | 2         |
| 18900   | 1880.0          | 23.31                 | 2.27                                | 25.58      | 361.41    | 2         |
| 19150   | 1905.0          | 23.32                 | 2.27                                | 25.59      | 362.24    | 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) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 18650   | 1855.0          | 23.22                 | 2.27                                | 25.49      | 354       | 2         |
| 18900   | 1880.0          | 23.05                 | 2.27                                | 25.32      | 340.41    | 2         |
| 19150   | 1905.0          | 23.14                 | 2.27                                | 25.41      | 347.54    | 2         |



**CHANNEL BANDWIDTH: 15MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T-Lc</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|------------------------|------------|-----------|-----------|
| 18675   | 1857.5          | 23.45                 | 2.27                   | 25.72      | 373.25    | 2         |
| 18900   | 1880.0          | 23.33                 | 2.27                   | 25.60      | 363.08    | 2         |
| 19125   | 1902.5          | 23.32                 | 2.27                   | 25.59      | 362.24    | 2         |

**CHANNEL BANDWIDTH: 15MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T-Lc</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|------------------------|------------|-----------|-----------|
| 18675   | 1857.5          | 23.16                 | 2.27                   | 25.43      | 349.14    | 2         |
| 18900   | 1880.0          | 23.09                 | 2.27                   | 25.36      | 343.56    | 2         |
| 19125   | 1902.5          | 23.10                 | 2.27                   | 25.37      | 344.35    | 2         |

**CHANNEL BANDWIDTH: 20MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T-Lc</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|------------------------|------------|-----------|-----------|
| 18700   | 1860            | 23.46                 | 2.27                   | 25.73      | 374.11    | 2         |
| 18900   | 1880            | 23.35                 | 2.27                   | 25.62      | 364.75    | 2         |
| 19100   | 1900            | 23.37                 | 2.27                   | 25.64      | 366.44    | 2         |

**CHANNEL BANDWIDTH: 20MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T-Lc</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|------------------------|------------|-----------|-----------|
| 18700   | 1860            | 23.24                 | 2.27                   | 25.51      | 355.63    | 2         |
| 18900   | 1880            | 23.13                 | 2.27                   | 25.40      | 346.74    | 2         |
| 19100   | 1900            | 23.15                 | 2.27                   | 25.42      | 348.34    | 2         |



**LTE BAND 25**

**CHANNEL BANDWIDTH: 1.4MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>C</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 26047   | 1850.7          | 23.58                 | 2.27                                | 25.85      | 384.59    | 2         |
| 26340   | 1880.0          | 23.59                 | 2.27                                | 25.86      | 385.48    | 2         |
| 26683   | 1914.3          | 23.78                 | 2.27                                | 26.05      | 402.72    | 2         |

**CHANNEL BANDWIDTH: 1.4MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>C</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 26047   | 1850.7          | 23.44                 | 2.27                                | 25.71      | 372.39    | 2         |
| 26340   | 1880.0          | 23.53                 | 2.27                                | 25.80      | 380.19    | 2         |
| 26683   | 1914.3          | 23.69                 | 2.27                                | 25.96      | 394.46    | 2         |

**CHANNEL BANDWIDTH: 3MHz QPSK**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>C</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 26055   | 1851.5          | 23.55                 | 2.27                                | 25.82      | 381.94    | 2         |
| 26340   | 1880.0          | 23.61                 | 2.27                                | 25.88      | 387.26    | 2         |
| 26675   | 1913.5          | 23.77                 | 2.27                                | 26.04      | 401.79    | 2         |

**CHANNEL BANDWIDTH: 3MHz 16QAM**

| Channel | Frequency (MHz) | Conducted Power (dBm) | G <sub>T</sub> -L <sub>C</sub> (dB) | EIRP (dBm) | EIRP (mW) | Limit (W) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 26055   | 1851.5          | 23.49                 | 2.27                                | 25.76      | 376.7     | 2         |
| 26340   | 1880.0          | 23.48                 | 2.27                                | 25.75      | 375.84    | 2         |
| 26675   | 1913.5          | 23.72                 | 2.27                                | 25.99      | 397.19    | 2         |



**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) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 26065   | 1852.5          | 23.56                 | 2.27                                | 25.83      | 382.82    | 2         |
| 26340   | 1880.0          | 23.56                 | 2.27                                | 25.83      | 382.82    | 2         |
| 26665   | 1912.5          | 23.81                 | 2.27                                | 26.08      | 405.51    | 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) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 26065   | 1852.5          | 23.46                 | 2.27                                | 25.73      | 374.11    | 2         |
| 26340   | 1880.0          | 23.52                 | 2.27                                | 25.79      | 379.31    | 2         |
| 26665   | 1912.5          | 23.68                 | 2.27                                | 25.95      | 393.55    | 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) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 26090   | 1855.0          | 23.53                 | 2.27                                | 25.80      | 380.19    | 2         |
| 26340   | 1880.0          | 23.59                 | 2.27                                | 25.86      | 385.48    | 2         |
| 26640   | 1910.0          | 23.78                 | 2.27                                | 26.05      | 402.72    | 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) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 26090   | 1855.0          | 23.50                 | 2.27                                | 25.77      | 377.57    | 2         |
| 26340   | 1880.0          | 23.46                 | 2.27                                | 25.73      | 374.11    | 2         |
| 26640   | 1910.0          | 23.73                 | 2.27                                | 26.00      | 398.11    | 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) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 26115   | 1857.5          | 23.60                 | 2.27                                | 25.87      | 386.37    | 2         |
| 26340   | 1880.0          | 23.61                 | 2.27                                | 25.88      | 387.26    | 2         |
| 26615   | 1907.5          | 23.78                 | 2.27                                | 26.05      | 402.72    | 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) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 26115   | 1857.5          | 23.44                 | 2.27                                | 25.71      | 372.39    | 2         |
| 26340   | 1880.0          | 23.50                 | 2.27                                | 25.77      | 377.57    | 2         |
| 26615   | 1907.5          | 23.69                 | 2.27                                | 25.96      | 394.46    | 2         |

**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) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 26140   | 1860.0          | 23.61                 | 2.27                                | 25.88      | 387.26    | 2         |
| 26340   | 1880.0          | 23.63                 | 2.27                                | 25.90      | 389.05    | 2         |
| 26590   | 1905.0          | 23.83                 | 2.27                                | 26.10      | 407.38    | 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) |
|---------|-----------------|-----------------------|-------------------------------------|------------|-----------|-----------|
| 26140   | 1860.0          | 23.52                 | 2.27                                | 25.79      | 379.31    | 2         |
| 26340   | 1880.0          | 23.54                 | 2.27                                | 25.81      | 381.07    | 2         |
| 26590   | 1905.0          | 23.74                 | 2.27                                | 26.01      | 399.02    | 2         |

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



### 3.2 FREQUENCY STABILITY MEASUREMENT

#### 3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

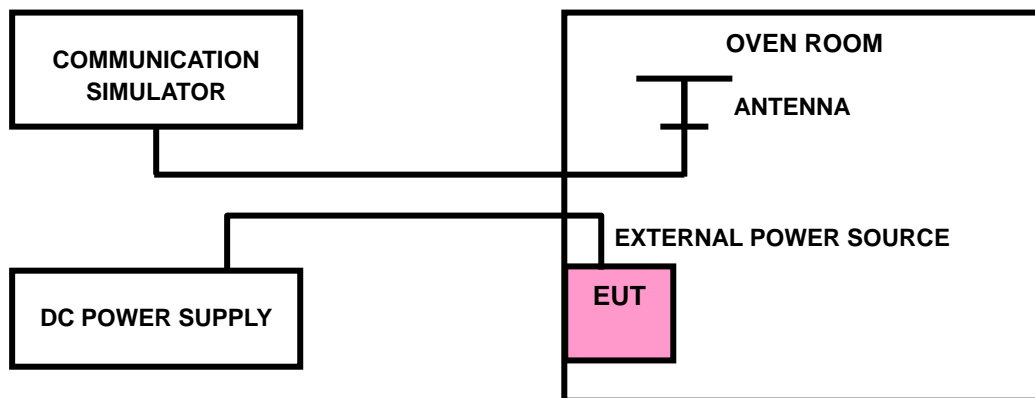
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

#### 3.2.2 TEST PROCEDURE

- a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- b. 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 record the frequency error rate.
- c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the  $\pm 0.5^{\circ}\text{C}$  during the measurement testing. The 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







**BUREAU** Test Report No.: RF200927W002-2  
**VERITAS**

### 3.2.4 TEST RESULTS

N/A

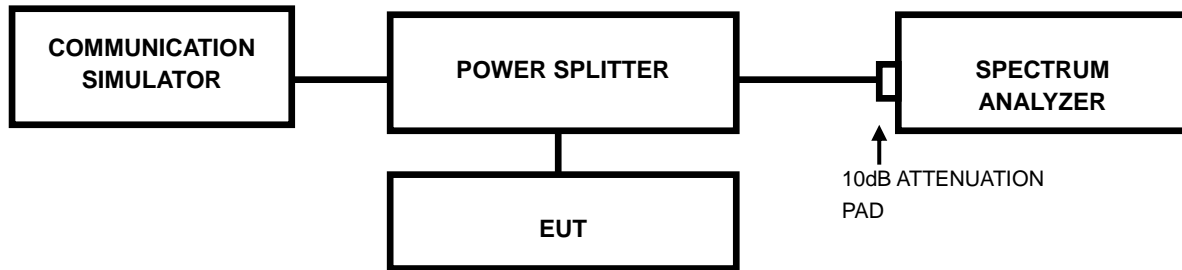


### 3.3 OCCUPIED BANDWIDTH MEASUREMENT

#### 3.3.1 TEST PROCEDURES

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

#### 3.3.2 TEST SETUP





**BUREAU** Test Report No.: RF200927W002-2  
**VERITAS**

### 3.3.3 TEST RESULTS

**N/A**

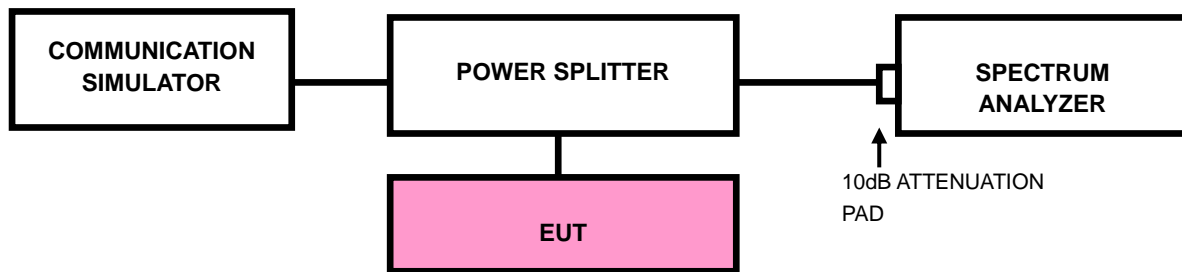


### 3.4 BAND EDGE MEASUREMENT

#### 3.4.1 LIMITS OF BAND EDGE MEASUREMENT

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. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

#### 3.4.2 TEST SETUP





### 3.4.3 TEST PROCEDURES

- a. All measurements were done at low and high operational frequency range.
- b. The center frequency of spectrum is the band edge frequency and span is 1.5 MHz. RBW of the spectrum is 10kHz and VBW of the spectrum is 30kHz (GSM/GPRS/ EDGE).
- c. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 20kHz and VBW of the spectrum is 100 kHz. (LTE bandwidth 1.4MHz)
- d. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 30kHz and VBW of the spectrum is 100kHz. (LTE bandwidth 3MHz)
- e. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 50kHz and VBW of the spectrum is 200kHz. (LTE bandwidth 5MHz)
- f. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz. (LTE bandwidth 10MHz)
- g. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 200kHz and VBW of the spectrum is 1MHz. (LTE bandwidth 15MHz)
- h. he center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 200kHz and VBW of the spectrum is 1MHz. (LTE bandwidth 20MHz)
- i. Record the max trace plot into the test report.



### 3.4.4. TEST RESULTS

N/A



### 3.5 CONDUCTED SPURIOUS EMISSIONS

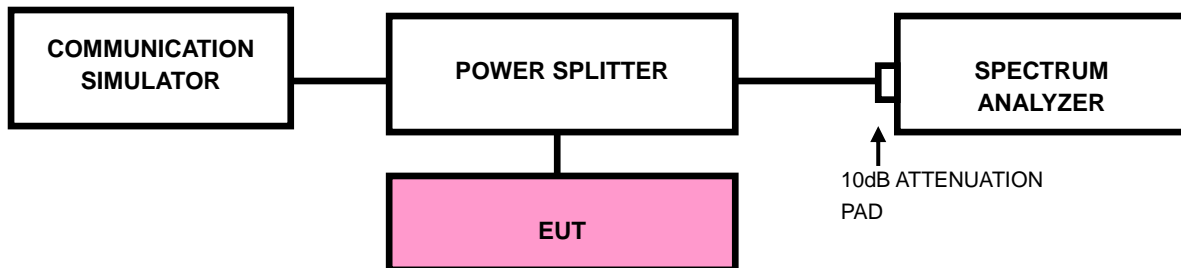
#### 3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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 equal to  $-13\text{dBm}$ .

#### 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 30 MHz to 19.1GHz. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

#### 3.5.3 TEST SETUP





**BUREAU** Test Report No.: RF200927W002-2  
**VERITAS**

### 3.5.4 TEST RESULTS

**N/A**





### 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  $-13\text{dBm}$ .

#### 3.6.2 TEST PROCEDURES

- a. Substitution 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 export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved 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.  $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$ .

**NOTE:** The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

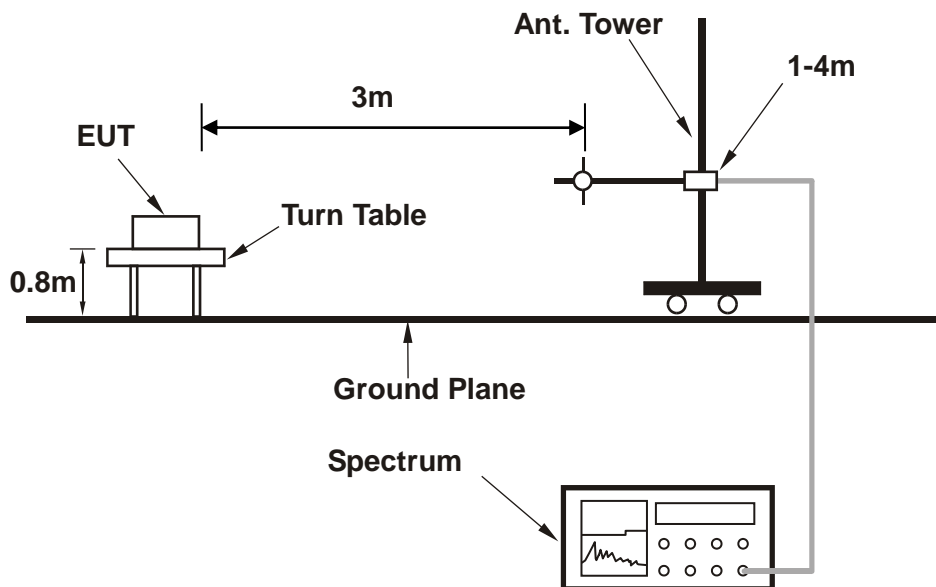
#### 3.6.3 DEVIATION FROM TEST STANDARD

No deviation

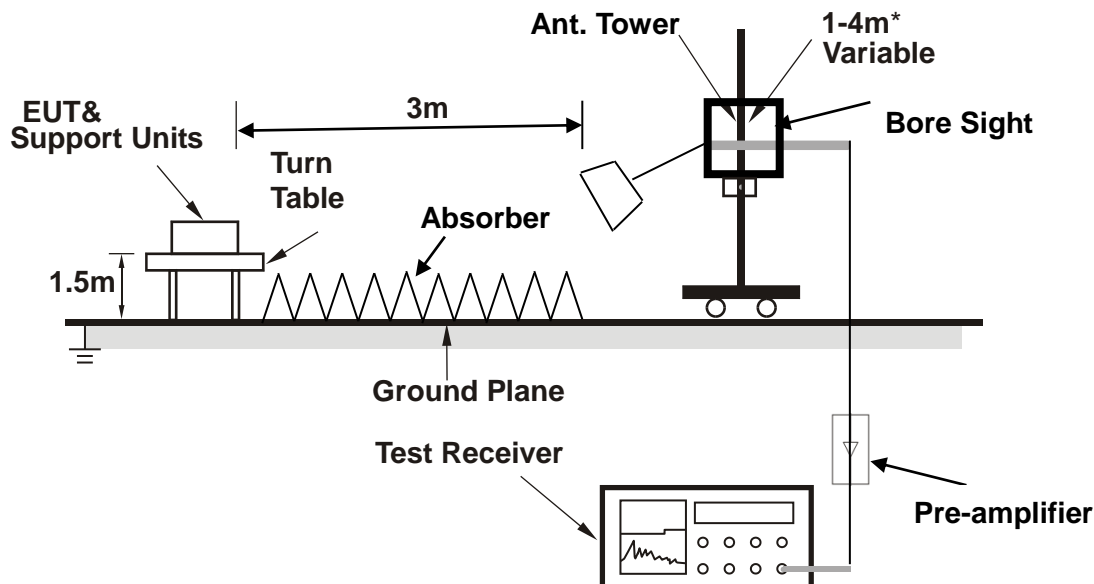


### 3.6.4 TEST SETUP

#### < 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

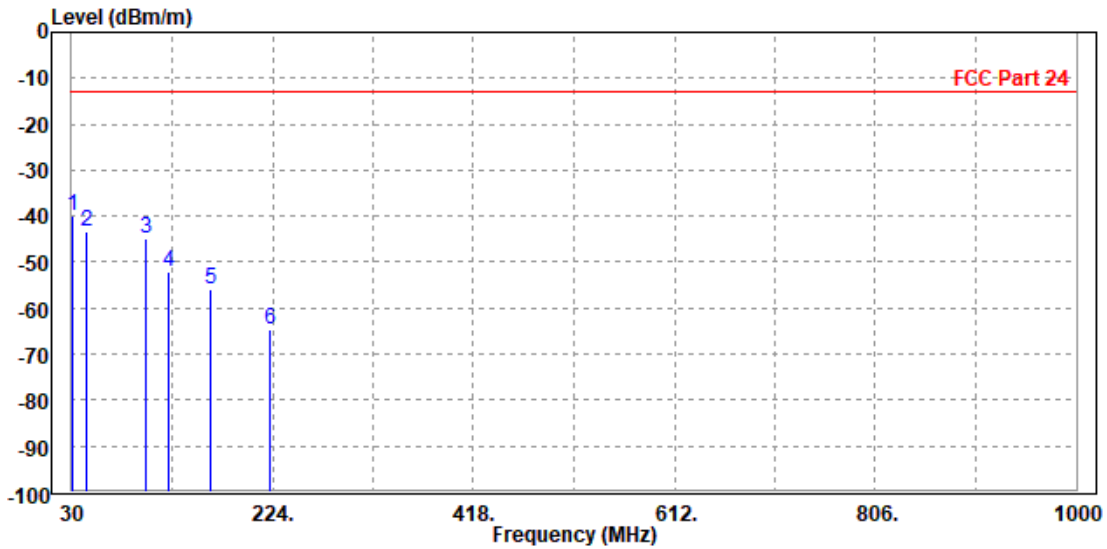
#### BELOW 1GHz WORST-CASE DATA

30 MHz – 1GHz data:

PCS 1900:

|  |                 |                        |                          |
|--|-----------------|------------------------|--------------------------|
| <b>MODE</b>  | TX channel 661  | <b>FREQUENCY RANGE</b> | Below 1000MHz            |
| <b>ENVIRONMENTAL CONDITIONS</b>                                | 23deg. C, 70%RH | <b>INPUT POWER</b>     | DC 5V from USB Host Unit |
| <b>TESTED BY</b>   | Jacky Liu       |                        |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                 |                        |                          |

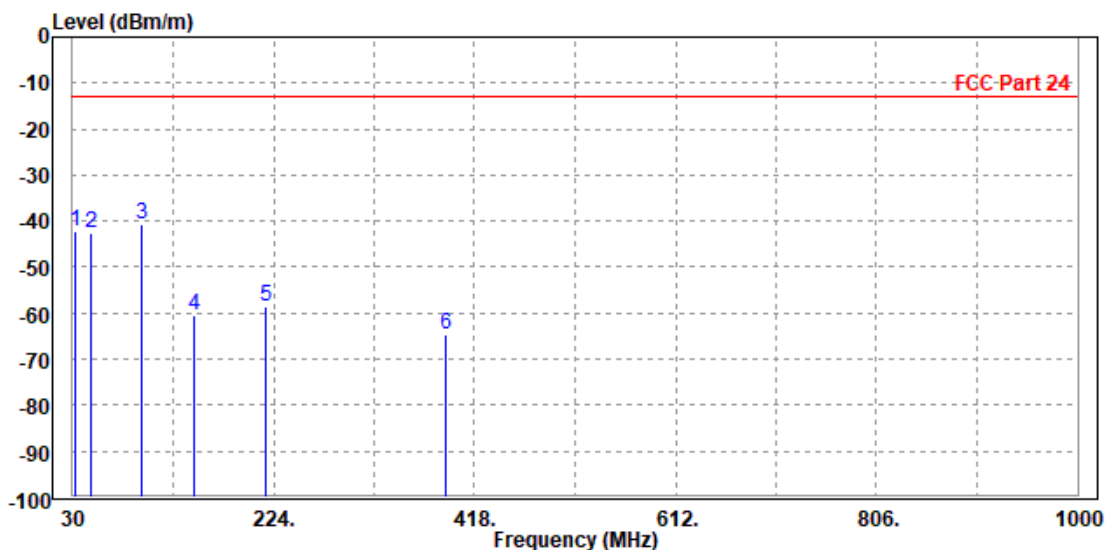
|   | Freq    | Level  | Read Level | Limit  | Over Limit | Factor | Remark | Pol/Phase  |
|---|---------|--------|------------|--------|------------|--------|--------|------------|
|   | MHz     | dBm/m  | dBm        | dBm/m  | dB         | dB/m   |        |            |
| 1 | 30.780  | -39.95 | -58.22     | -13.00 | -26.95     | 18.27  | Peak   | Horizontal |
| 2 | 44.120  | -43.27 | -51.74     | -13.00 | -30.27     | 8.47   | Peak   | Horizontal |
| 3 | 101.250 | -44.95 | -33.54     | -13.00 | -31.95     | -11.41 | Peak   | Horizontal |
| 4 | 123.410 | -52.11 | -36.45     | -13.00 | -39.11     | -15.66 | Peak   | Horizontal |
| 5 | 164.250 | -55.90 | -37.58     | -13.00 | -42.90     | -18.32 | Peak   | Horizontal |
| 6 | 220.770 | -64.69 | -47.85     | -13.00 | -51.69     | -16.84 | Peak   | Horizontal |





|  |                 |                        |                          |
|--|-----------------|------------------------|--------------------------|
| <b>MODE</b>  | TX channel 661  | <b>FREQUENCY RANGE</b> | Below 1000MHz            |
| <b>ENVIRONMENTAL CONDITIONS</b>                              | 23deg. C, 70%RH | <b>INPUT POWER</b>     | DC 5V from USB Host Unit |
| <b>TESTED BY</b>   | Jacky Liu       |                        |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                 |                        |                          |

|      | Freq    | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|---------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz     | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 33.200  | -42.19 | -43.26     | -13.00     | -29.19     | 1.07   | Peak   | Vertical  |
| 2    | 48.150  | -42.70 | -38.55     | -13.00     | -29.70     | -4.15  | Peak   | Vertical  |
| 3 PP | 97.150  | -40.77 | -30.14     | -13.00     | -27.77     | -10.63 | Peak   | Vertical  |
| 4    | 148.020 | -60.63 | -44.65     | -13.00     | -47.63     | -15.98 | Peak   | Vertical  |
| 5    | 216.360 | -58.46 | -47.54     | -13.00     | -45.46     | -10.92 | Peak   | Vertical  |
| 6    | 389.560 | -64.71 | -53.74     | -13.00     | -51.71     | -10.97 | Peak   | Vertical  |





**ABOVE 1GHz DATA**

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

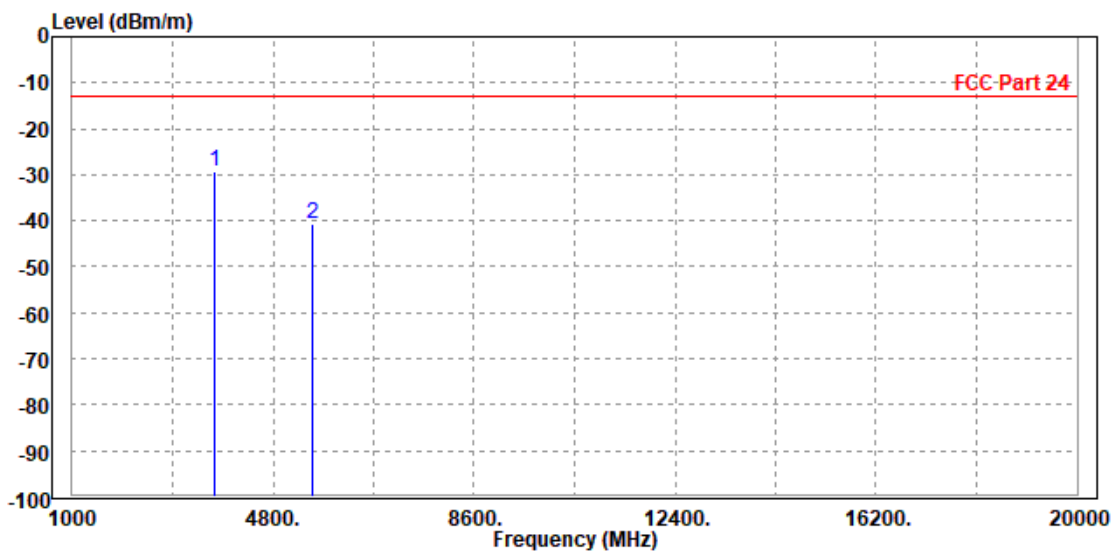
**WORST-CASE DATA**

**PCS 1900:**

**CH 512**

|  |                 |                        |                          |
|--|-----------------|------------------------|--------------------------|
| <b>MODE</b>  | TX channel 512  | <b>FREQUENCY RANGE</b> | Above 1000MHz            |
| <b>ENVIRONMENTAL CONDITIONS</b>                                | 23deg. C, 70%RH | <b>INPUT POWER</b>     | DC 5V from USB Host Unit |
| <b>TESTED BY</b>   | Jacky Liu       |                        |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                 |                        |                          |

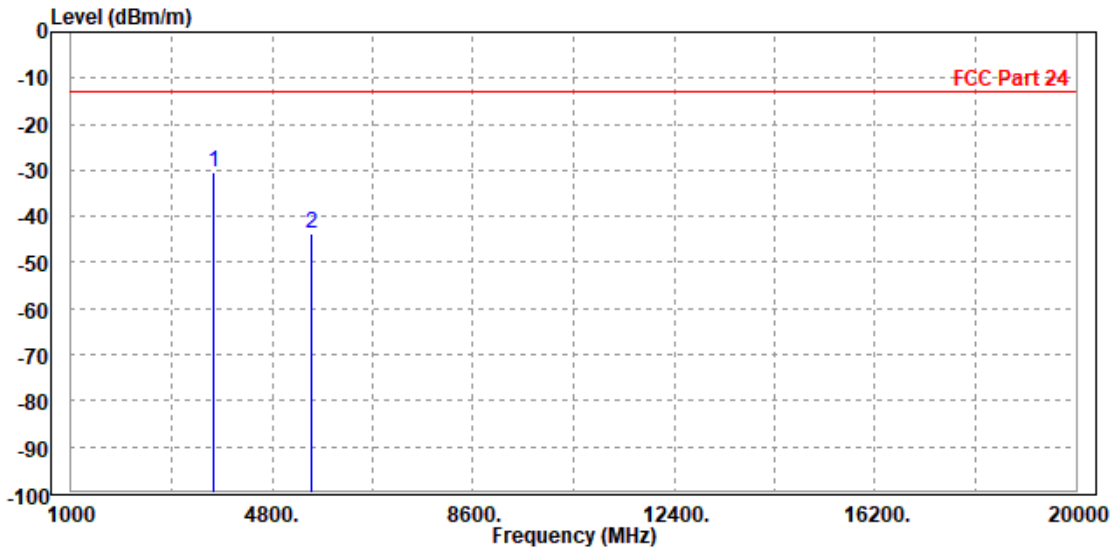
|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|-------------|--------|------------|------------|------------|--------|--------|------------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | PP 3698.000 | -29.37 | -38.15     | -13.00     | -16.37     | 8.78   | Peak   | Horizontal |
| 2 | 5550.600    | -40.54 | -50.73     | -13.00     | -27.54     | 10.19  | Peak   | Horizontal |





|  |                 |                 |                          |
|--|-----------------|-----------------|--------------------------|
| MODE   | TX channel 512  | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                     | 23deg. C, 70%RH | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu       |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                 |                 |                          |

|   | Freq        | Level  | Read Level | Limit  | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|--------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m  | dB         | dB/m   |        |           |
| 1 | PP 3698.000 | -30.53 | -39.78     | -13.00 | -17.53     | 9.25   | Peak   | Vertical  |
| 2 | 5550.600    | -43.71 | -53.61     | -13.00 | -30.71     | 9.90   | Peak   | Vertical  |

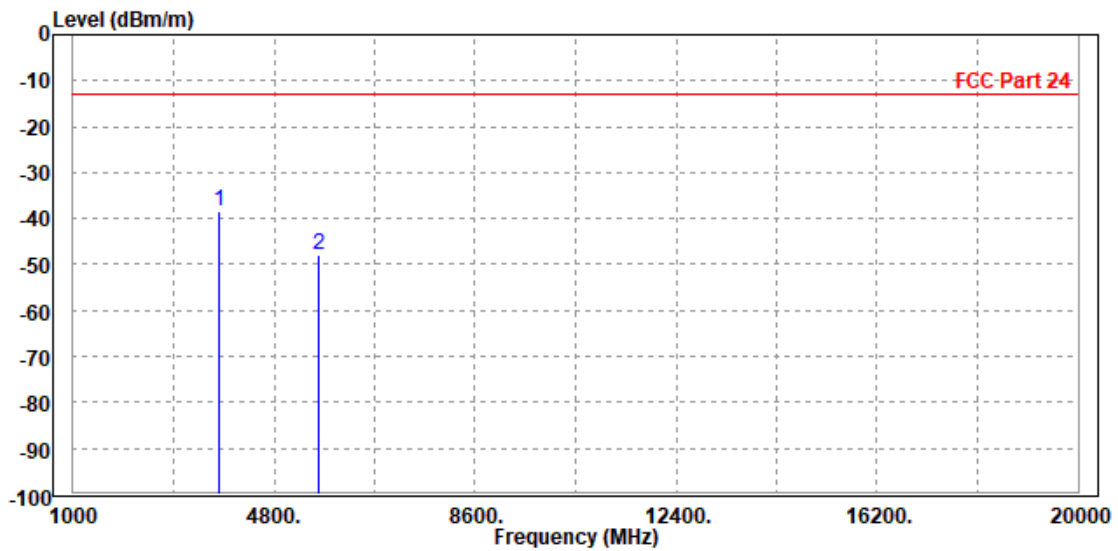




CH 661

|  |                 |                 |                          |
|--|-----------------|-----------------|--------------------------|
| MODE   | TX channel 661  | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                       | 23deg. C, 70%RH | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu       |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                 |                 |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|-------------|--------|------------|------------|------------|--------|--------|------------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | PP 3755.000 | -38.40 | -47.25     | -13.00     | -25.40     | 8.85   | Peak   | Horizontal |
| 2 | 5640.000    | -47.89 | -58.37     | -13.00     | -34.89     | 10.48  | Peak   | Horizontal |



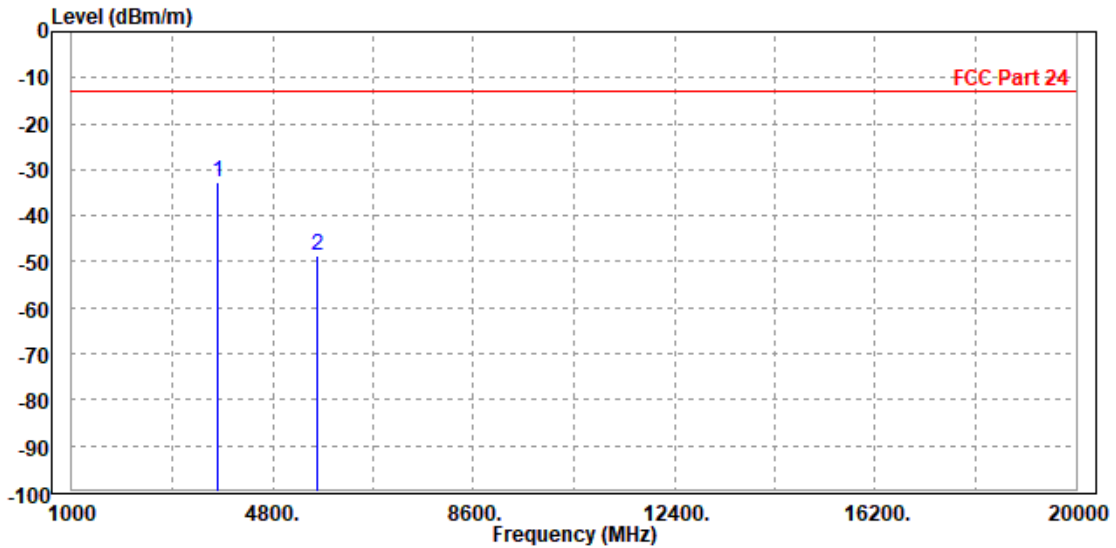


BUREAU VERITAS

Test Report No.: RF200927W002-2

|  |                 |                 |                          |
|--|-----------------|-----------------|--------------------------|
| MODE   | TX channel 661  | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                     | 23deg. C, 70%RH | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu       |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                 |                 |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP 3755.000 | -32.86 | -42.13     | -13.00     | -19.86     | 9.27   | Peak   | Vertical  |
| 2 | 5640.000    | -48.71 | -58.96     | -13.00     | -35.71     | 10.25  | Peak   | Vertical  |



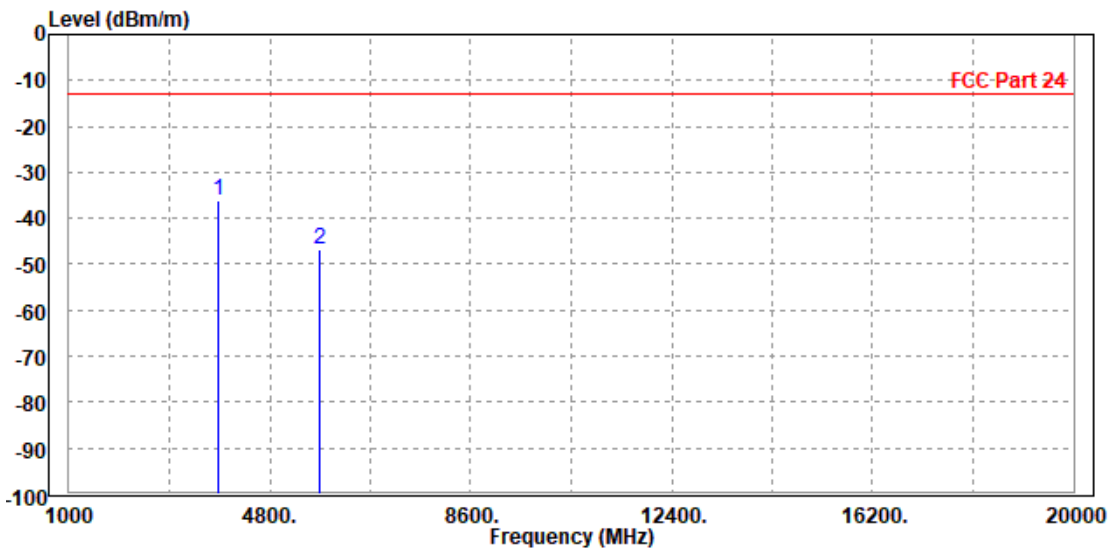




CH 810

|  |                 |                 |                          |
|--|-----------------|-----------------|--------------------------|
| MODE   | TX channel 810  | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                       | 23deg. C, 70%RH | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu       |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                 |                 |                          |

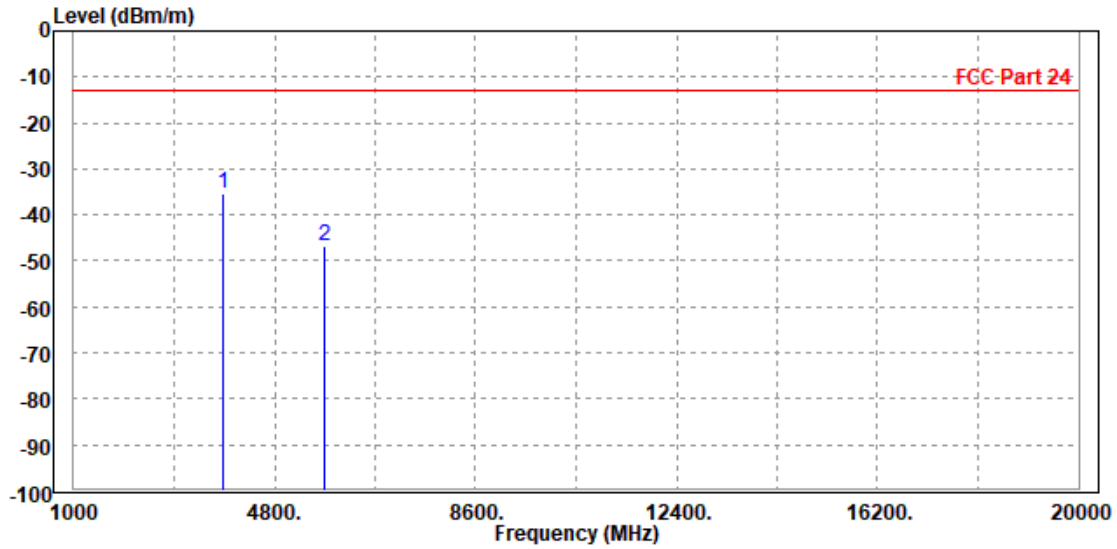
|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|------|----------|--------|------------|------------|------------|--------|--------|------------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 PP | 3812.000 | -36.03 | -44.94     | -13.00     | -23.03     | 8.91   | Peak   | Horizontal |
| 2    | 5729.400 | -46.62 | -57.40     | -13.00     | -33.62     | 10.78  | Peak   | Horizontal |





|  |                 |                        |                          |
|--|-----------------|------------------------|--------------------------|
| <b>MODE</b>  | TX channel 810  | <b>FREQUENCY RANGE</b> | Above 1000MHz            |
| <b>ENVIRONMENTAL CONDITIONS</b>                              | 23deg. C, 70%RH | <b>INPUT POWER</b>     | DC 5V from USB Host Unit |
| <b>TESTED BY</b>   | Jacky Liu       |                        |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                 |                        |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP 3812.000 | -35.45 | -44.74     | -13.00     | -22.45     | 9.29   | Peak   | Vertical  |
| 2 | 5729.400    | -46.81 | -57.40     | -13.00     | -33.81     | 10.59  | Peak   | Vertical  |



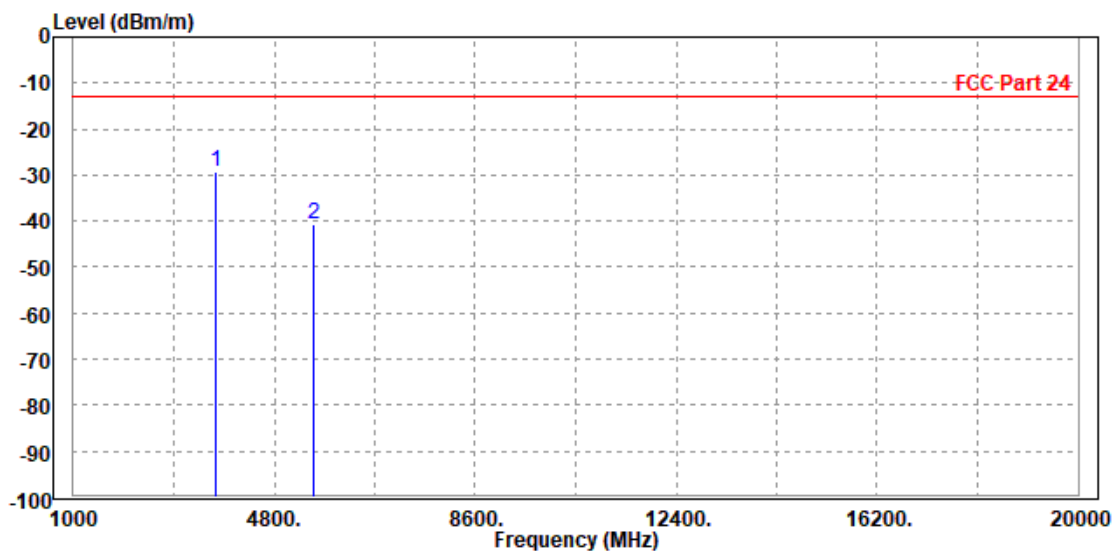


EDGE 1900:

CH 512

|  |                 |                 |                          |
|--|-----------------|-----------------|--------------------------|
| MODE   | TX channel 512  | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                       | 23deg. C, 70%RH | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu       |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                 |                 |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|-------------|--------|------------|------------|------------|--------|--------|------------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | PP 3698.000 | -29.37 | -38.15     | -13.00     | -16.37     | 8.78   | Peak   | Horizontal |
| 2 | 5550.600    | -40.54 | -50.73     | -13.00     | -27.54     | 10.19  | Peak   | Horizontal |



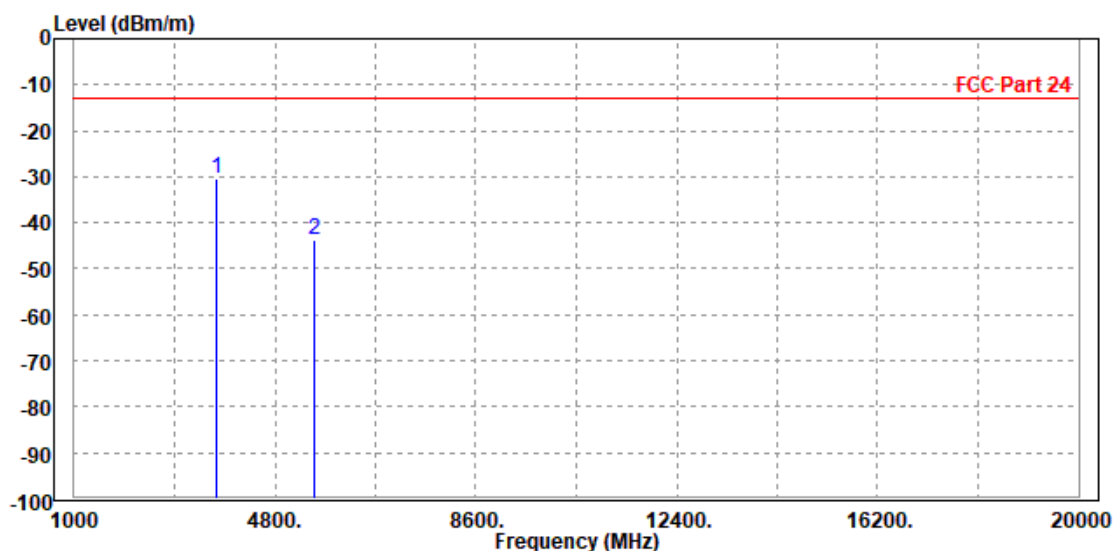


BUREAU VERITAS

Test Report No.: RF200927W002-2

|  |                 |                 |                          |
|--|-----------------|-----------------|--------------------------|
| MODE   | TX channel 512  | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                     | 23deg. C, 70%RH | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu       |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                 |                 |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP 3698.000 | -30.53 | -39.78     | -13.00     | -17.53     | 9.25   | Peak   | Vertical  |
| 2 | 5550.600    | -43.71 | -53.61     | -13.00     | -30.71     | 9.90   | Peak   | Vertical  |

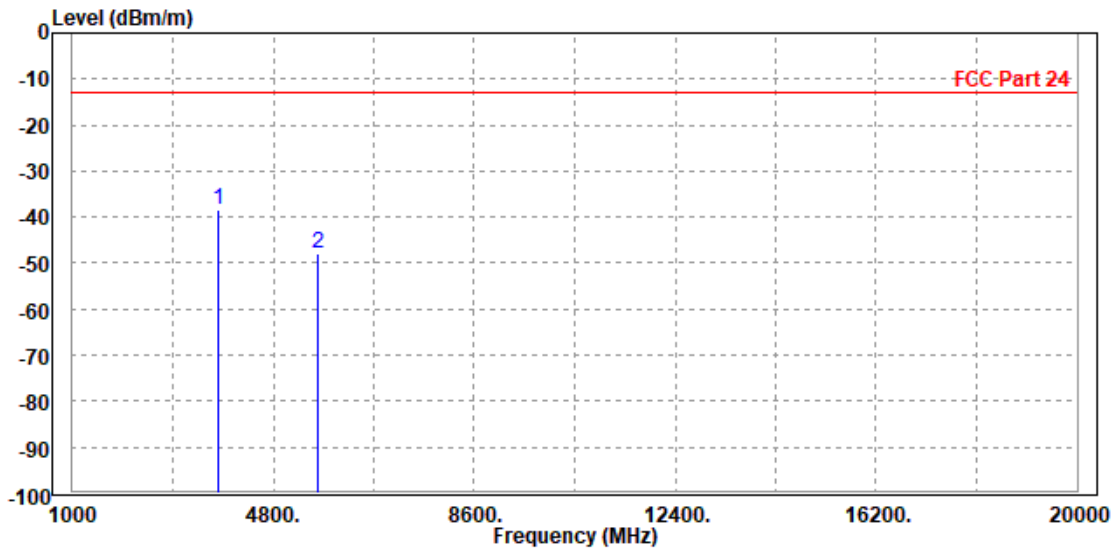




CH 661

|  |                 |                 |                          |
|--|-----------------|-----------------|--------------------------|
| MODE   | TX channel 661  | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                       | 23deg. C, 70%RH | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu       |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                 |                 |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|-------------|--------|------------|------------|------------|--------|--------|------------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | PP 3755.000 | -38.40 | -47.25     | -13.00     | -25.40     | 8.85   | Peak   | Horizontal |
| 2 | 5640.000    | -47.89 | -58.37     | -13.00     | -34.89     | 10.48  | Peak   | Horizontal |



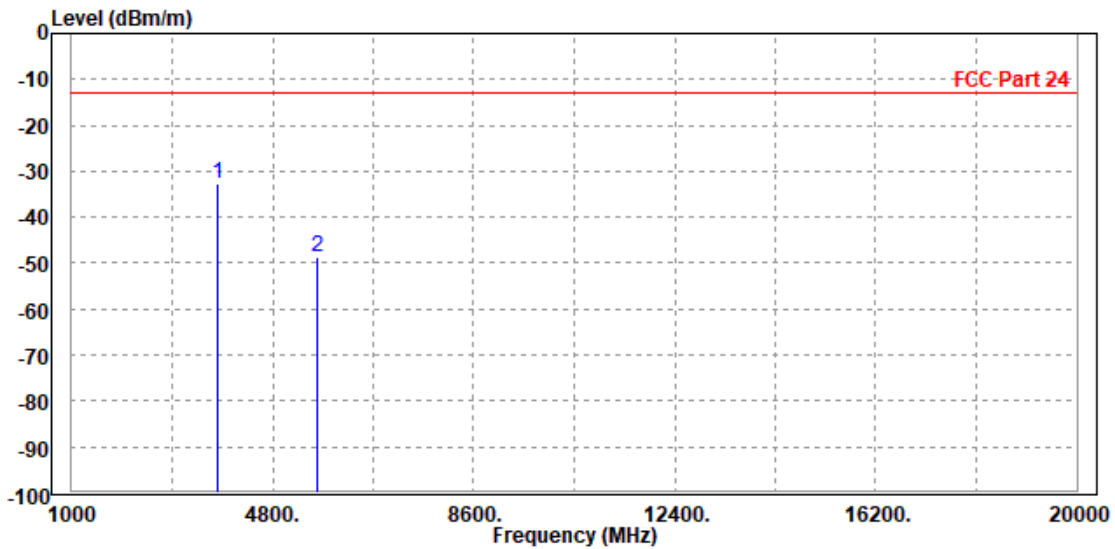


BUREAU VERITAS

Test Report No.: RF200927W002-2

|  |                 |                 |                          |
|--|-----------------|-----------------|--------------------------|
| MODE   | TX channel 661  | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                     | 23deg. C, 70%RH | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu       |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                 |                 |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP 3755.000 | -32.86 | -42.13     | -13.00     | -19.86     | 9.27   | Peak   | Vertical  |
| 2 | 5640.000    | -48.71 | -58.96     | -13.00     | -35.71     | 10.25  | Peak   | Vertical  |

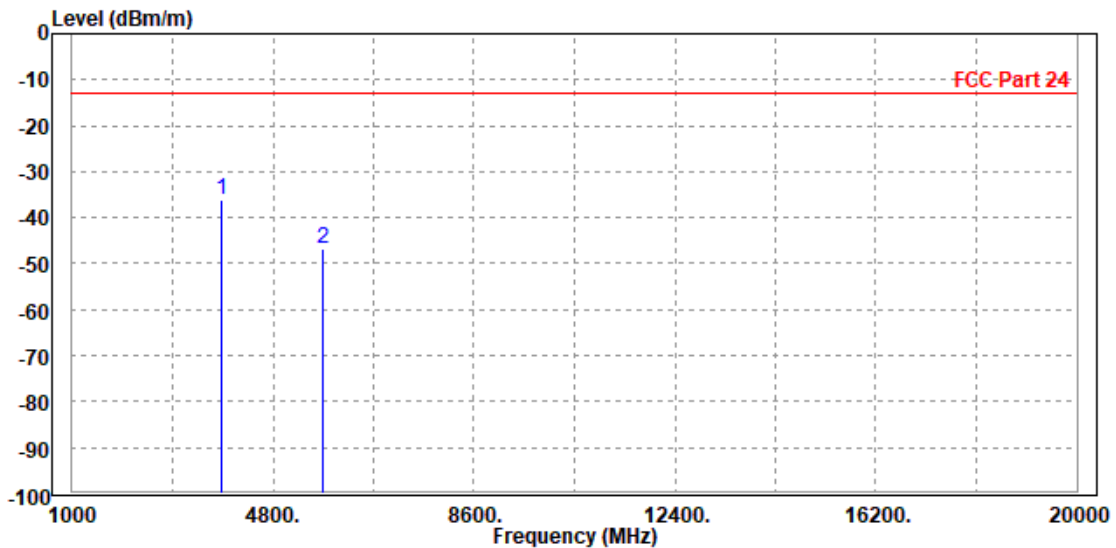




CH 810

|  |                 |                 |                          |
|--|-----------------|-----------------|--------------------------|
| MODE   | TX channel 810  | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                       | 23deg. C, 70%RH | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu       |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                 |                 |                          |

|   | Freq        | Level  | Read Level | Limit  | Over Limit | Factor | Remark | Pol/Phase  |
|---|-------------|--------|------------|--------|------------|--------|--------|------------|
|   | MHz         | dBm/m  | dBm        | dBm/m  | dB         | dB/m   |        |            |
| 1 | PP 3812.000 | -36.03 | -44.94     | -13.00 | -23.03     | 8.91   | Peak   | Horizontal |
| 2 | 5729.400    | -46.62 | -57.40     | -13.00 | -33.62     | 10.78  | Peak   | Horizontal |



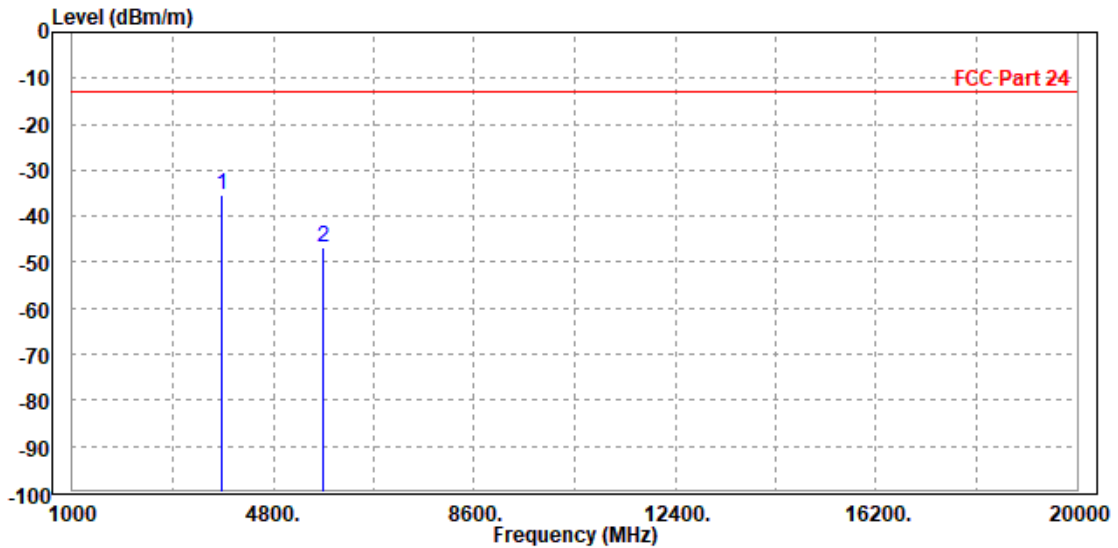


BUREAU VERITAS

Test Report No.: RF200927W002-2

|  |                 |                 |                          |
|--|-----------------|-----------------|--------------------------|
| MODE   | TX channel 810  | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                     | 23deg. C, 70%RH | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu       |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                 |                 |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP 3812.000 | -35.45 | -44.74     | -13.00     | -22.45     | 9.29   | Peak   | Vertical  |
| 2 | 5729.400    | -46.81 | -57.40     | -13.00     | -33.81     | 10.59  | Peak   | Vertical  |





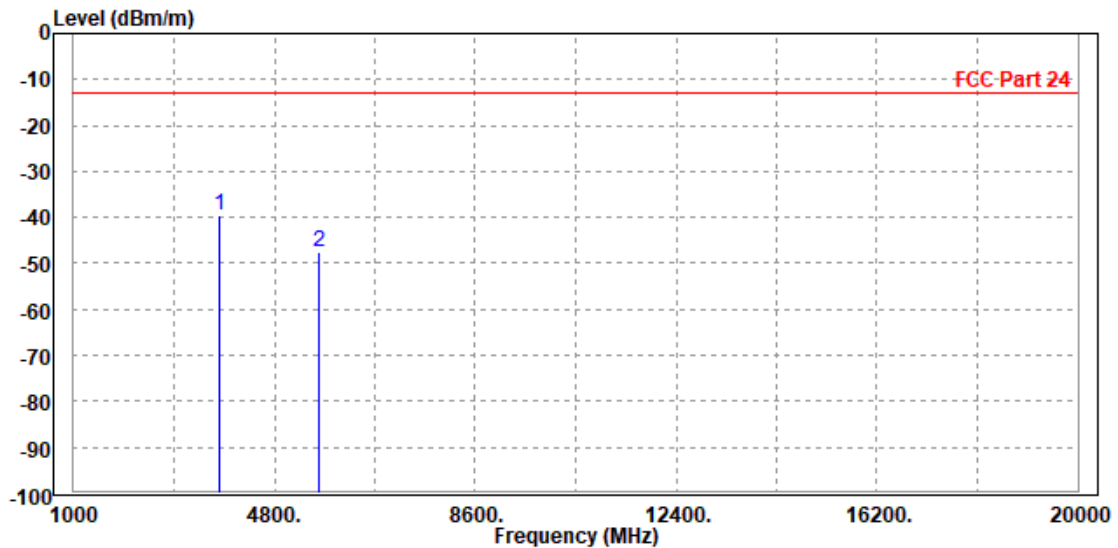


**LTE Band 2**

**CHANNEL BANDWIDTH: 1.4MHz / QPSK**

|  |                  |                        |                          |
|--|------------------|------------------------|--------------------------|
| <b>MODE</b>  | TX channel 18900 | <b>FREQUENCY RANGE</b> | Above 1000MHz            |
| <b>ENVIRONMENTAL CONDITIONS</b>                                | 23deg. C, 70%RH  | <b>INPUT POWER</b>     | DC 5V from USB Host Unit |
| <b>TESTED BY</b>   | Jacky Liu        |                        |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                  |                        |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|-------------|--------|------------|------------|------------|--------|--------|------------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | PP 3755.000 | -39.36 | -48.21     | -13.00     | -26.36     | 8.85   | Peak   | Horizontal |
| 2 | 5640.000    | -47.53 | -58.01     | -13.00     | -34.53     | 10.48  | Peak   | Horizontal |



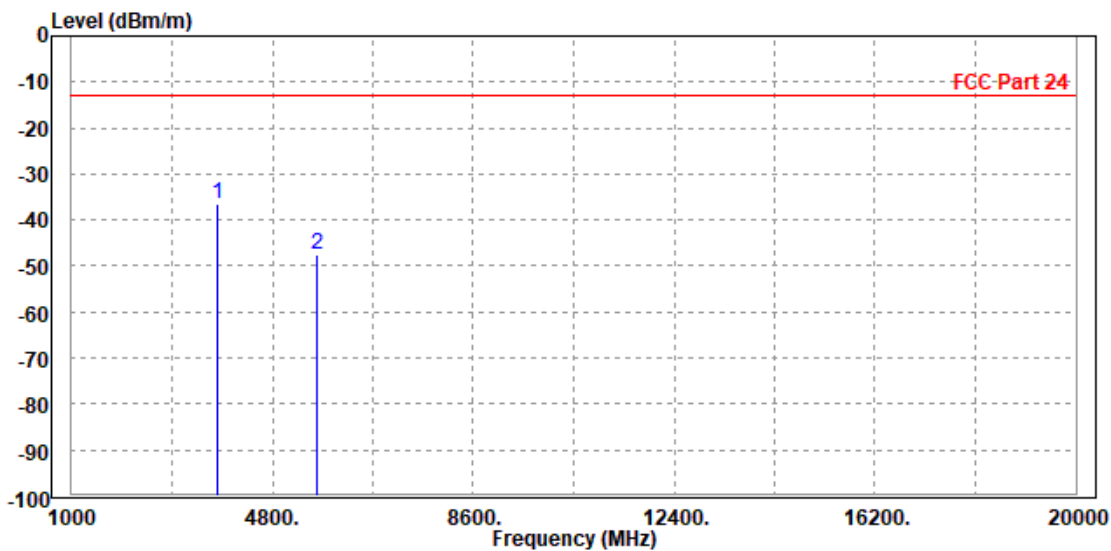


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VERITAS**

Test Report No.: RF200927W002-2

|  |                  |                        |                          |
|--|------------------|------------------------|--------------------------|
| <b>MODE</b>  | TX channel 18900 | <b>FREQUENCY RANGE</b> | Above 1000MHz            |
| <b>ENVIRONMENTAL CONDITIONS</b>                              | 23deg. C, 70%RH  | <b>INPUT POWER</b>     | DC 5V from USB Host Unit |
| <b>TESTED BY</b>   | Jacky Liu        |                        |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                  |                        |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP 3755.000 | -36.54 | -45.81     | -13.00     | -23.54     | 9.27   | Peak   | Vertical  |
| 2 | 5640.000    | -47.47 | -57.72     | -13.00     | -34.47     | 10.25  | Peak   | Vertical  |





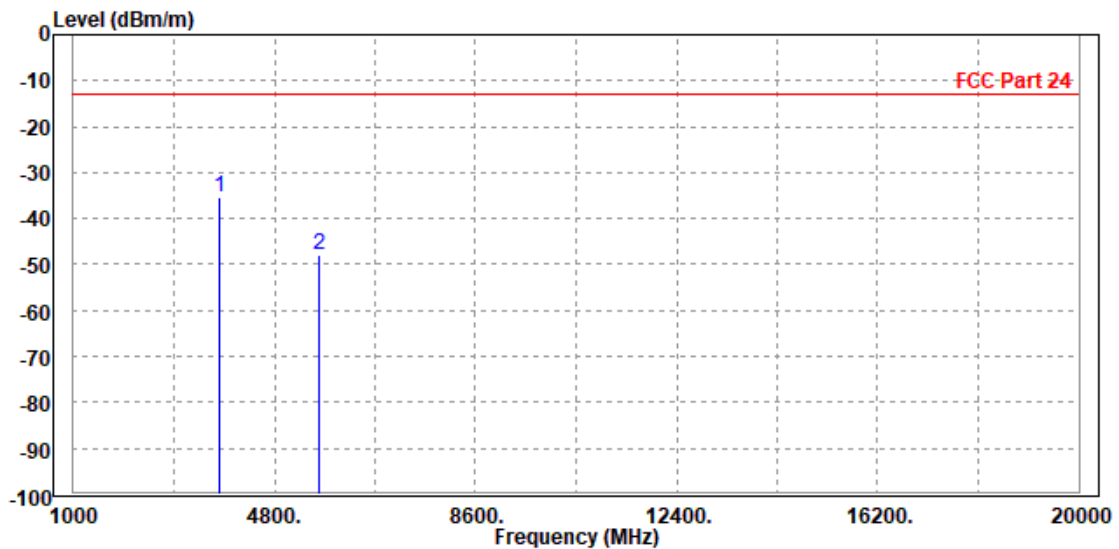
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Test Report No.: RF200927W002-2

CHANNEL BANDWIDTH: 3MHz / QPSK

|  |                  |                 |                          |
|--|------------------|-----------------|--------------------------|
| MODE   | TX channel 18900 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                       | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu        |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                  |                 |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|-------------|--------|------------|------------|------------|--------|--------|------------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | PP 3760.000 | -35.32 | -44.17     | -13.00     | -22.32     | 8.85   | Peak   | Horizontal |
| 2 | 5640.000    | -47.93 | -58.41     | -13.00     | -34.93     | 10.48  | Peak   | Horizontal |



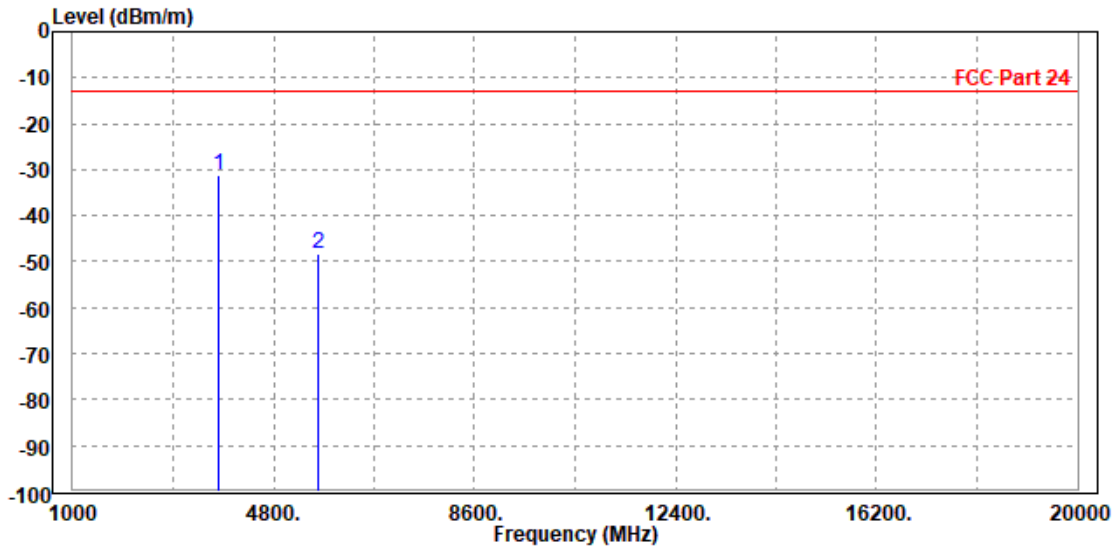


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Test Report No.: RF200927W002-2

|  |                  |                        |                          |
|--|------------------|------------------------|--------------------------|
| <b>MODE</b>  | TX channel 18900 | <b>FREQUENCY RANGE</b> | Above 1000MHz            |
| <b>ENVIRONMENTAL CONDITIONS</b>                              | 23deg. C, 70%RH  | <b>INPUT POWER</b>     | DC 5V from USB Host Unit |
| <b>TESTED BY</b>   | Jacky Liu        |                        |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                  |                        |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP 3755.000 | -31.14 | -40.41     | -13.00     | -18.14     | 9.27   | Peak   | Vertical  |
| 2 | 5640.000    | -48.40 | -58.65     | -13.00     | -35.40     | 10.25  | Peak   | Vertical  |





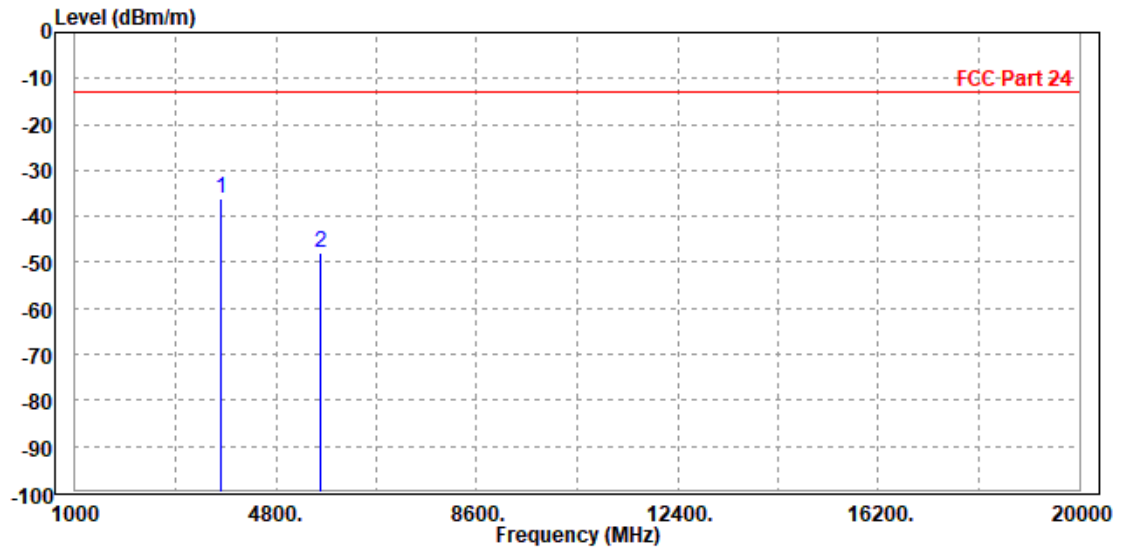
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VERITAS**

Test Report No.: RF200927W002-2

**CHANNEL BANDWIDTH: 5MHz / QPSK**

|  |                  |                        |                          |
|--|------------------|------------------------|--------------------------|
| <b>MODE</b>  | TX channel 18900 | <b>FREQUENCY RANGE</b> | Above 1000MHz            |
| <b>ENVIRONMENTAL CONDITIONS</b>                                | 23deg. C, 70%RH  | <b>INPUT POWER</b>     | DC 5V from USB Host Unit |
| <b>TESTED BY</b>   | Jacky Liu        |                        |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                  |                        |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|-------------|--------|------------|------------|------------|--------|--------|------------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | PP 3755.000 | -36.01 | -44.86     | -13.00     | -23.01     | 8.85   | Peak   | Horizontal |
| 2 | 5640.000    | -47.93 | -58.41     | -13.00     | -34.93     | 10.48  | Peak   | Horizontal |



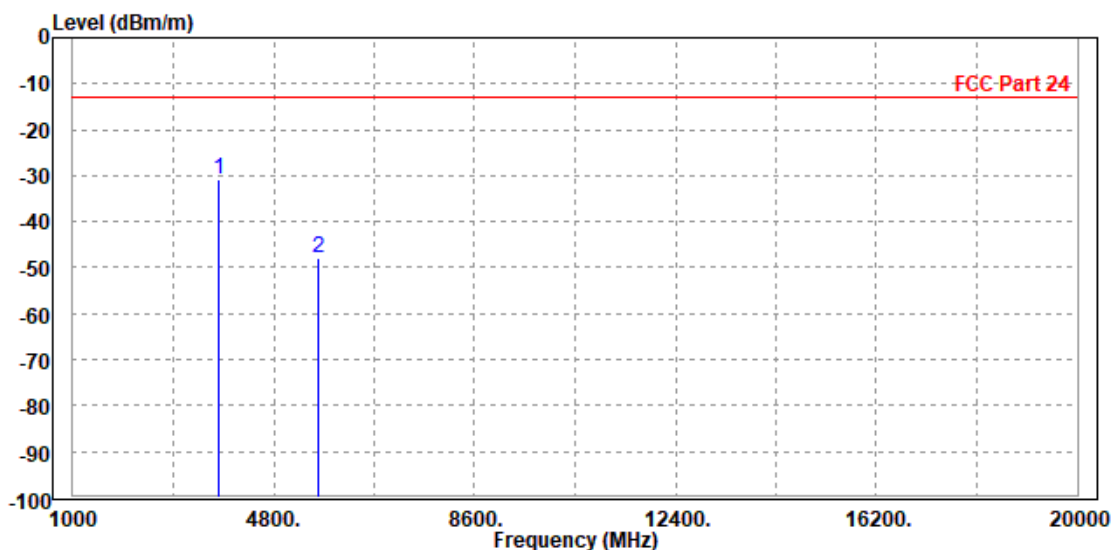


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VERITAS**

Test Report No.: RF200927W002-2

|  |                  |                        |                          |
|--|------------------|------------------------|--------------------------|
| <b>MODE</b>  | TX channel 18900 | <b>FREQUENCY RANGE</b> | Above 1000MHz            |
| <b>ENVIRONMENTAL CONDITIONS</b>                              | 23deg. C, 70%RH  | <b>INPUT POWER</b>     | DC 5V from USB Host Unit |
| <b>TESTED BY</b>   | Jacky Liu        |                        |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                  |                        |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP 3755.000 | -30.95 | -40.22     | -13.00     | -17.95     | 9.27   | Peak   | Vertical  |
| 2 | 5640.000    | -48.08 | -58.33     | -13.00     | -35.08     | 10.25  | Peak   | Vertical  |



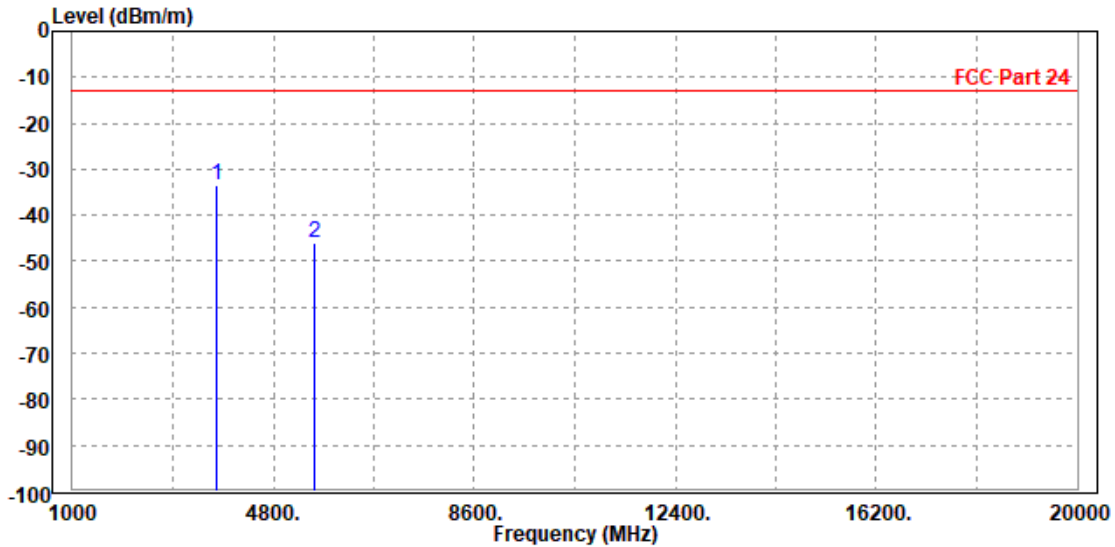


**CHANNEL BANDWIDTH: 10MHz / QPSK**

**CH18650**

|  |                  |                        |                          |
|--|------------------|------------------------|--------------------------|
| <b>MODE</b>  | TX channel 18650 | <b>FREQUENCY RANGE</b> | Above 1000MHz            |
| <b>ENVIRONMENTAL CONDITIONS</b>                                | 23deg. C, 70%RH  | <b>INPUT POWER</b>     | DC 5V from USB Host Unit |
| <b>TESTED BY</b>   | Jacky Liu        |                        |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                  |                        |                          |

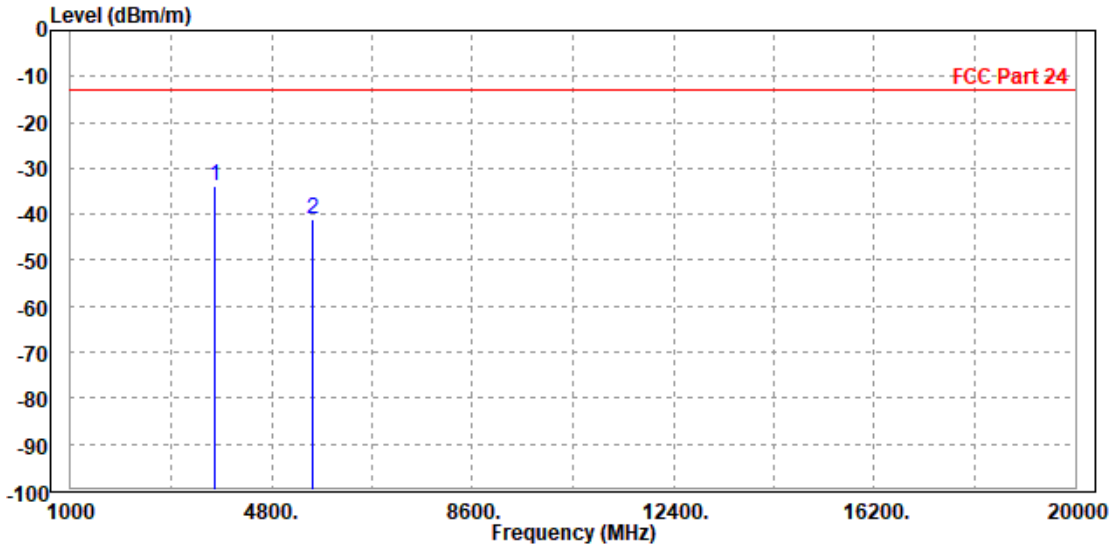
|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|-------------|--------|------------|------------|------------|--------|--------|------------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | PP 3717.000 | -33.48 | -42.29     | -13.00     | -20.48     | 8.81   | Peak   | Horizontal |
| 2 | 5565.000    | -46.10 | -56.34     | -13.00     | -33.10     | 10.24  | Peak   | Horizontal |





|  |                  |                 |                          |
|--|------------------|-----------------|--------------------------|
| MODE   | TX channel 18650 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                     | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu        |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                  |                 |                          |

|   | Freq        | Level  | Read Level | Limit  | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|--------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m  | dB         | dB/m   |        |           |
| 1 | PP 3717.000 | -33.69 | -42.95     | -13.00 | -20.69     | 9.26   | Peak   | Vertical  |
| 2 | 5565.000    | -40.90 | -50.86     | -13.00 | -27.90     | 9.96   | Peak   | Vertical  |







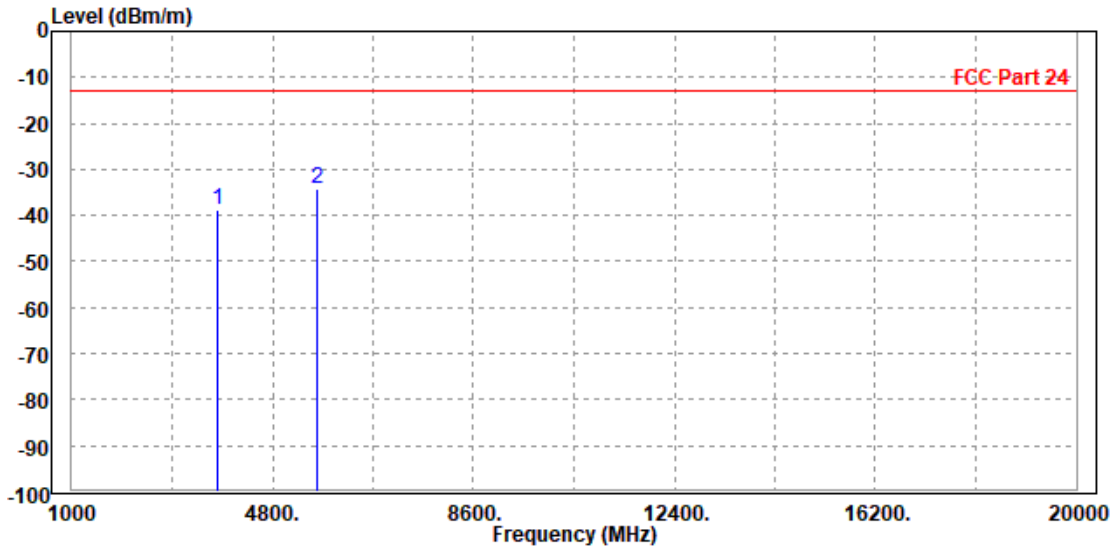
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Test Report No.: RF200927W002-2

**CH18900**

|  |                  |                        |                          |
|--|------------------|------------------------|--------------------------|
| <b>MODE</b>  | TX channel 18900 | <b>FREQUENCY RANGE</b> | Above 1000MHz            |
| <b>ENVIRONMENTAL CONDITIONS</b>                                | 23deg. C, 70%RH  | <b>INPUT POWER</b>     | DC 5V from USB Host Unit |
| <b>TESTED BY</b>   | Jacky Liu        |                        |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                  |                        |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|-------------|--------|------------|------------|------------|--------|--------|------------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | 3755.000    | -38.86 | -47.71     | -13.00     | -25.86     | 8.85   | Peak   | Horizontal |
| 2 | PP 5640.000 | -34.06 | -44.54     | -13.00     | -21.06     | 10.48  | Peak   | Horizontal |



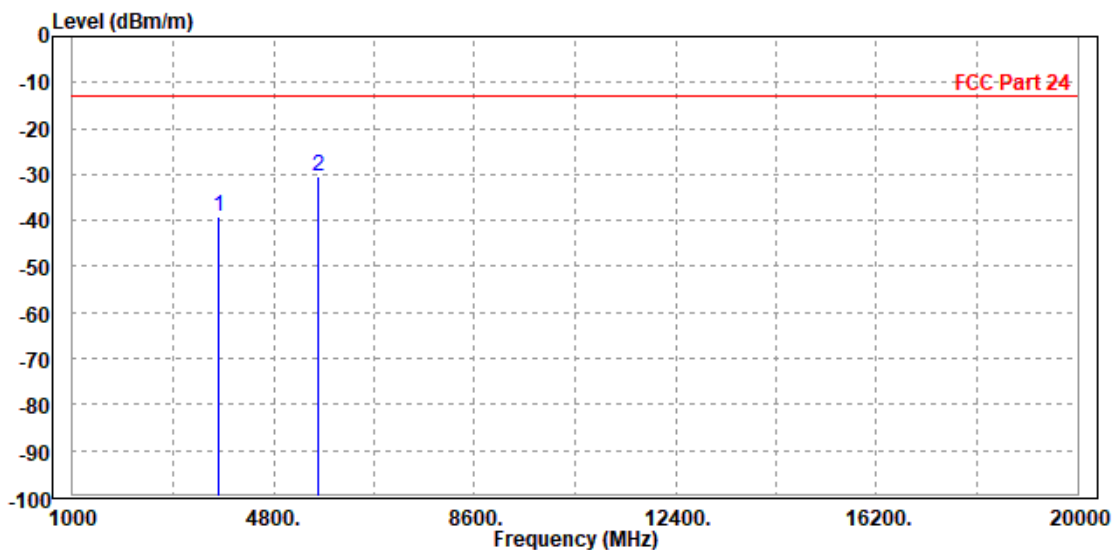


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VERITAS**

Test Report No.: RF200927W002-2

|  |                  |                        |                          |
|--|------------------|------------------------|--------------------------|
| <b>MODE</b>  | TX channel 18900 | <b>FREQUENCY RANGE</b> | Above 1000MHz            |
| <b>ENVIRONMENTAL CONDITIONS</b>                              | 23deg. C, 70%RH  | <b>INPUT POWER</b>     | DC 5V from USB Host Unit |
| <b>TESTED BY</b>   | Jacky Liu        |                        |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                  |                        |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | 3755.000    | -39.23 | -48.50     | -13.00     | -26.23     | 9.27   | Peak   | Vertical  |
| 2 | PP 5640.000 | -30.28 | -40.53     | -13.00     | -17.28     | 10.25  | Peak   | Vertical  |

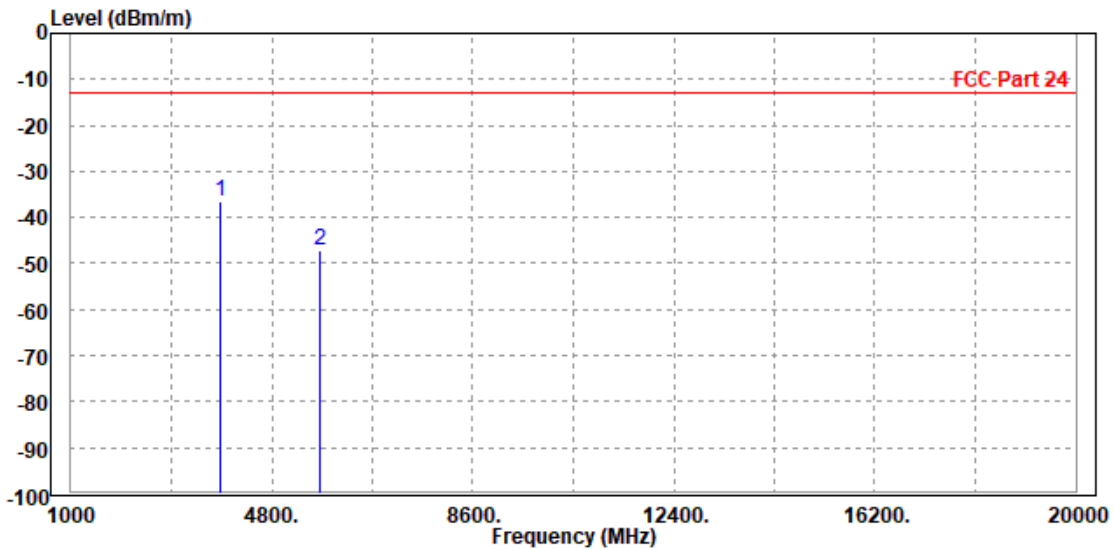




CH19150

|  |                  |                 |                          |
|--|------------------|-----------------|--------------------------|
| MODE   | TX channel 19150 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                       | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu        |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                  |                 |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|-------------|--------|------------|------------|------------|--------|--------|------------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | PP 3812.000 | -36.51 | -45.42     | -13.00     | -23.51     | 8.91   | Peak   | Horizontal |
| 2 | 5715.000    | -47.17 | -57.90     | -13.00     | -34.17     | 10.73  | Peak   | Horizontal |



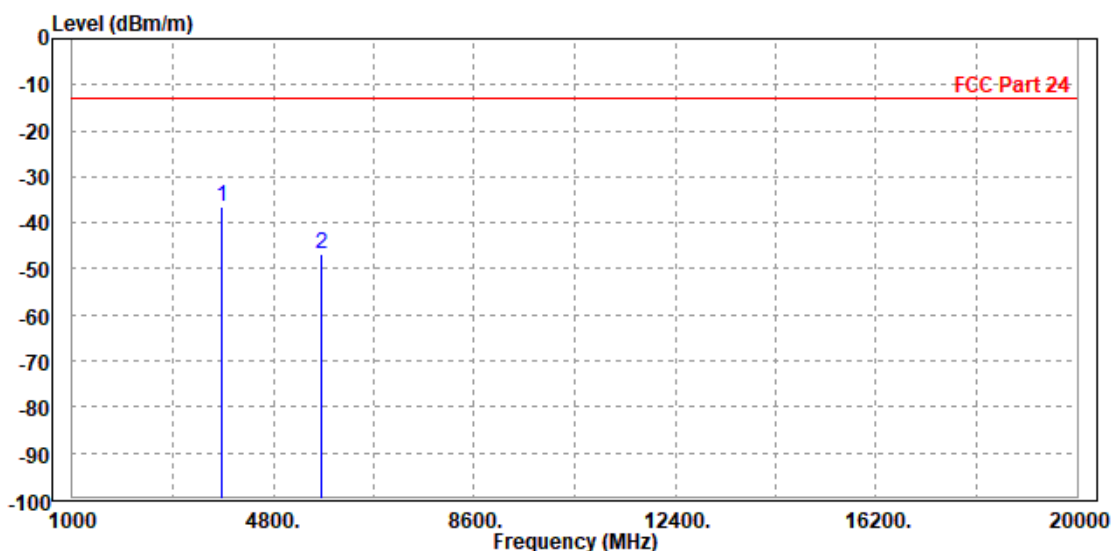


BUREAU VERITAS

Test Report No.: RF200927W002-2

|  |                  |                 |                          |
|--|------------------|-----------------|--------------------------|
| MODE   | TX channel 19150 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                     | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu        |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                  |                 |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP 3812.000 | -36.58 | -45.87     | -13.00     | -23.58     | 9.29   | Peak   | Vertical  |
| 2 | 5715.000    | -46.81 | -57.35     | -13.00     | -33.81     | 10.54  | Peak   | Vertical  |

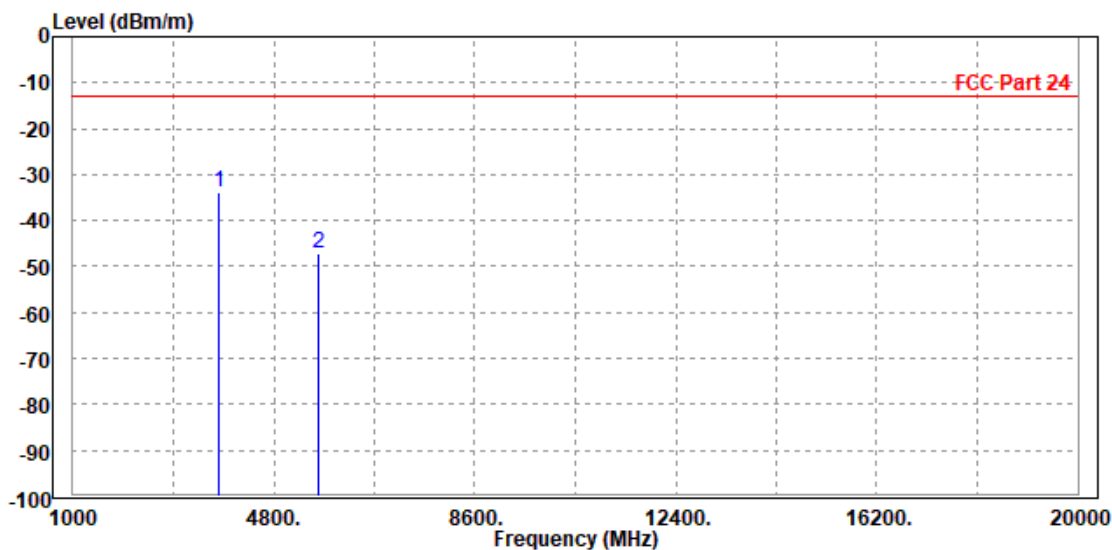




CHANNEL BANDWIDTH: 15MHz / QPSK

|  |                  |                 |                          |
|--|------------------|-----------------|--------------------------|
| MODE   | TX channel 18900 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                       | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu        |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                  |                 |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|-------------|--------|------------|------------|------------|--------|--------|------------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | PP 3755.000 | -33.85 | -42.70     | -13.00     | -20.85     | 8.85   | Peak   | Horizontal |
| 2 | 5640.000    | -47.16 | -57.64     | -13.00     | -34.16     | 10.48  | Peak   | Horizontal |



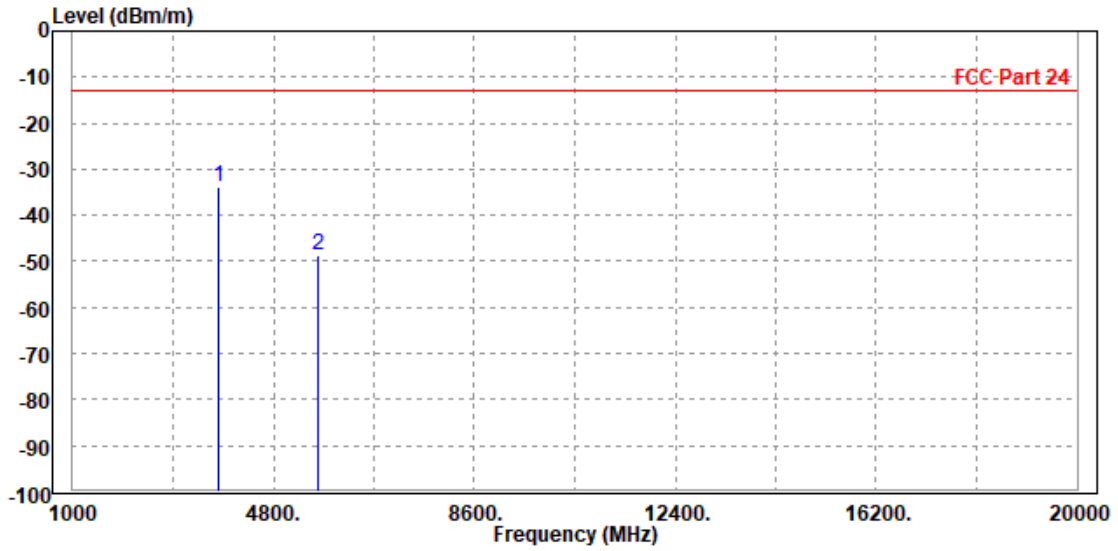


BUREAU VERITAS

Test Report No.: RF200927W002-2

|  |                  |                 |                          |
|--|------------------|-----------------|--------------------------|
| MODE   | TX channel 18900 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                     | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu        |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                  |                 |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP 3755.000 | -33.92 | -43.19     | -13.00     | -20.92     | 9.27   | Peak   | Vertical  |
| 2 | 5640.000    | -48.59 | -58.84     | -13.00     | -35.59     | 10.25  | Peak   | Vertical  |

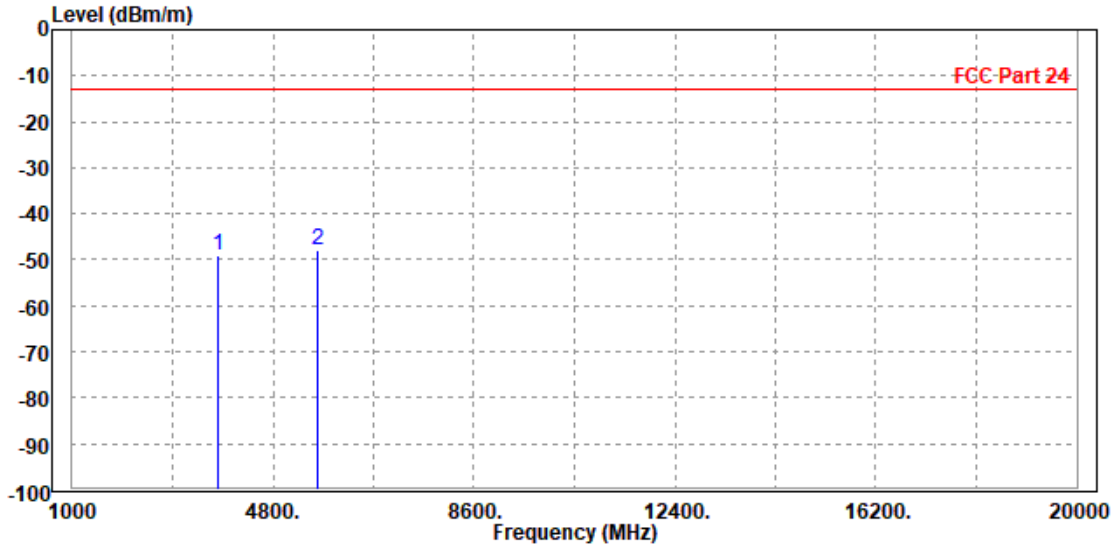




CHANNEL BANDWIDTH: 20MHz / QPSK

|  |                  |                 |                          |
|--|------------------|-----------------|--------------------------|
| MODE   | TX channel 18900 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                       | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu        |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                  |                 |                          |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|------|----------|--------|------------|------------|------------|--------|--------|------------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1    | 3755.000 | -49.02 | -57.87     | -13.00     | -36.02     | 8.85   | Peak   | Horizontal |
| 2 PP | 5640.000 | -47.89 | -58.37     | -13.00     | -34.89     | 10.48  | Peak   | Horizontal |



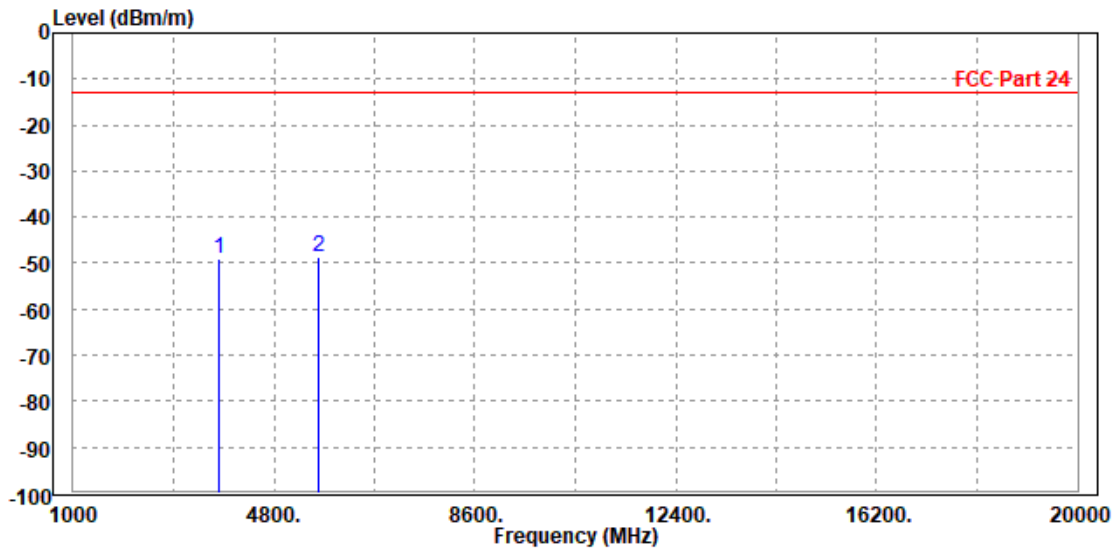


**BUREAU  
VERITAS**

Test Report No.: RF200927W002-2

|  |                  |                        |                          |
|--|------------------|------------------------|--------------------------|
| <b>MODE</b>  | TX channel 18900 | <b>FREQUENCY RANGE</b> | Above 1000MHz            |
| <b>ENVIRONMENTAL CONDITIONS</b>                              | 23deg. C, 70%RH  | <b>INPUT POWER</b>     | DC 5V from USB Host Unit |
| <b>TESTED BY</b>   | Jacky Liu        |                        |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                  |                        |                          |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|----------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 3755.000 | -48.95 | -58.22     | -13.00     | -35.95     | 9.27   | Peak   | Vertical  |
| 2 PP | 5640.000 | -48.59 | -58.84     | -13.00     | -35.59     | 10.25  | Peak   | Vertical  |





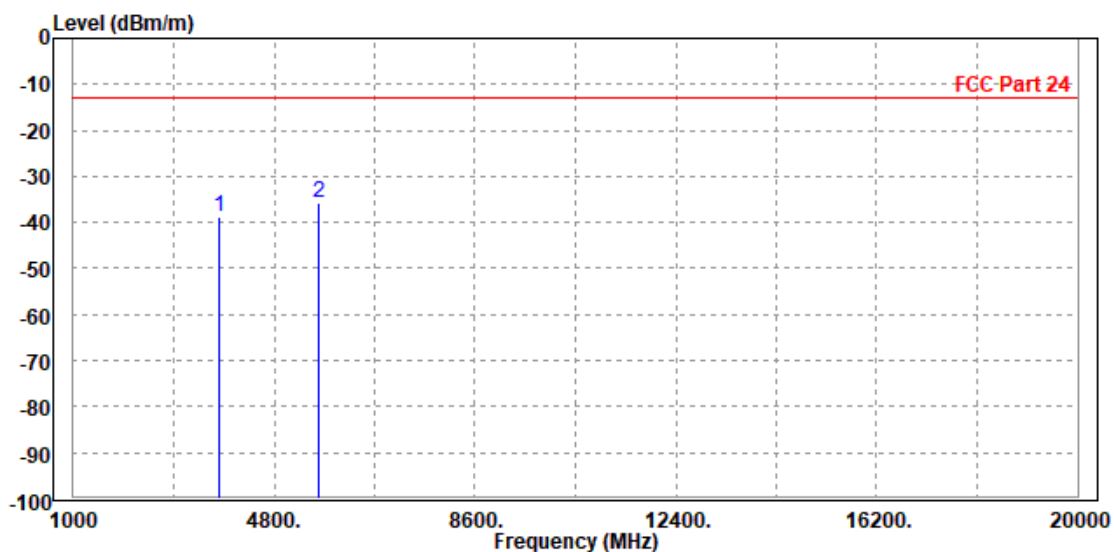


LTE Band 25

CHANNEL BANDWIDTH: 1.4MHz / QPSK

|   |                  |                 |                          |
|---|------------------|-----------------|--------------------------|
| MODE  | TX channel 26365 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY   | Jacky Liu        |                 |                          |
| 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    | 3774.000 | -38.69 | -47.56     | -13.00     | -25.69     | 8.87   | Peak   | Horizontal |
| 2 PP | 5647.500 | -35.86 | -46.37     | -13.00     | -22.86     | 10.51  | Peak   | Horizontal |



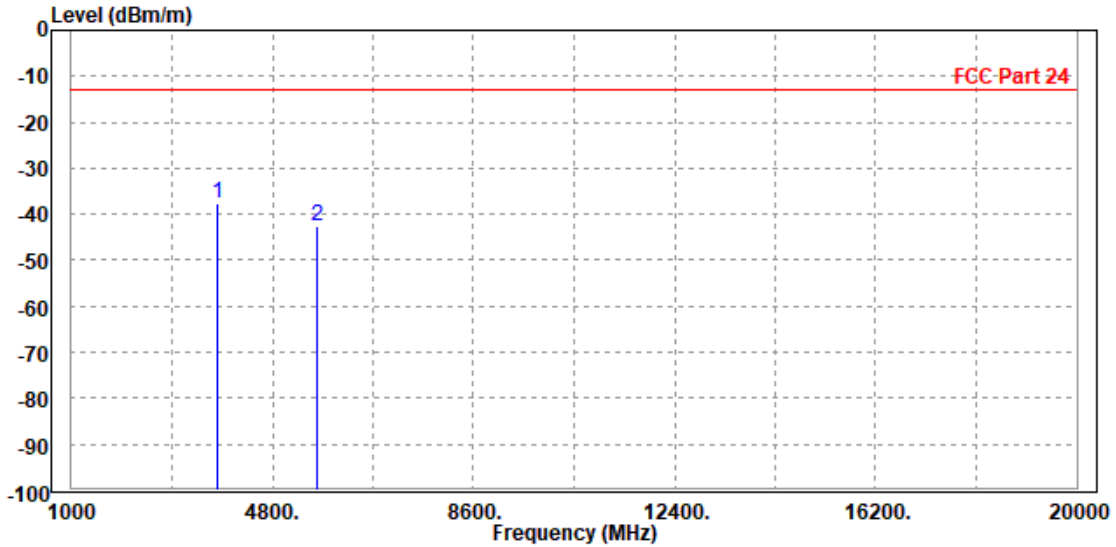


BUREAU VERITAS

Test Report No.: RF200927W002-2

|  |                  |                 |                          |
|--|------------------|-----------------|--------------------------|
| MODE   | TX channel 26365 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                     | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu        |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                  |                 |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP 3774.000 | -37.75 | -47.02     | -13.00     | -24.75     | 9.27   | Peak   | Vertical  |
| 2 | 5647.500    | -42.68 | -52.96     | -13.00     | -29.68     | 10.28  | Peak   | Vertical  |

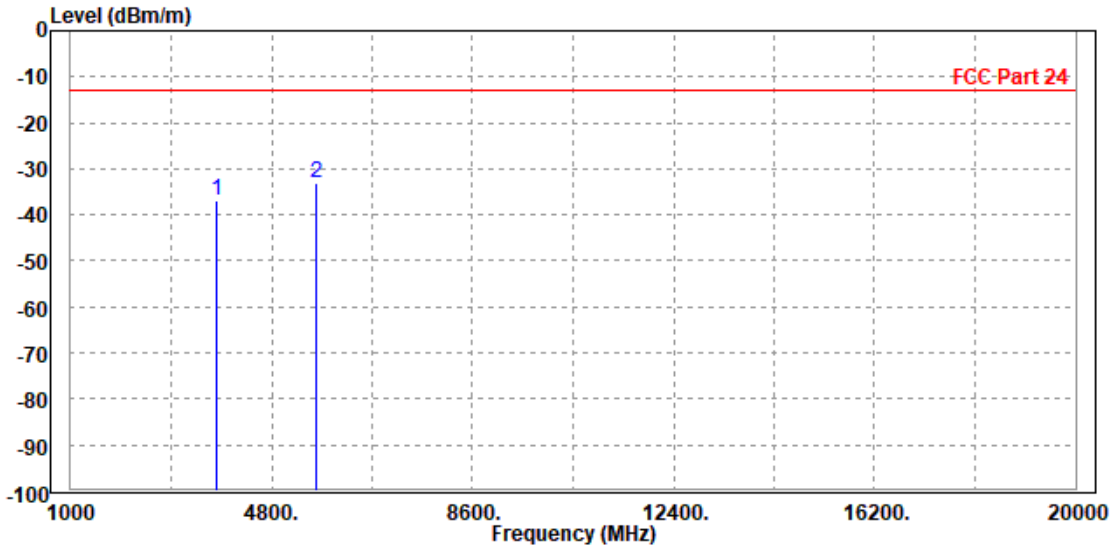




CHANNEL BANDWIDTH: 3MHz / QPSK

|  |                  |                 |                          |
|--|------------------|-----------------|--------------------------|
| MODE   | TX channel 26365 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                       | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu        |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                  |                 |                          |

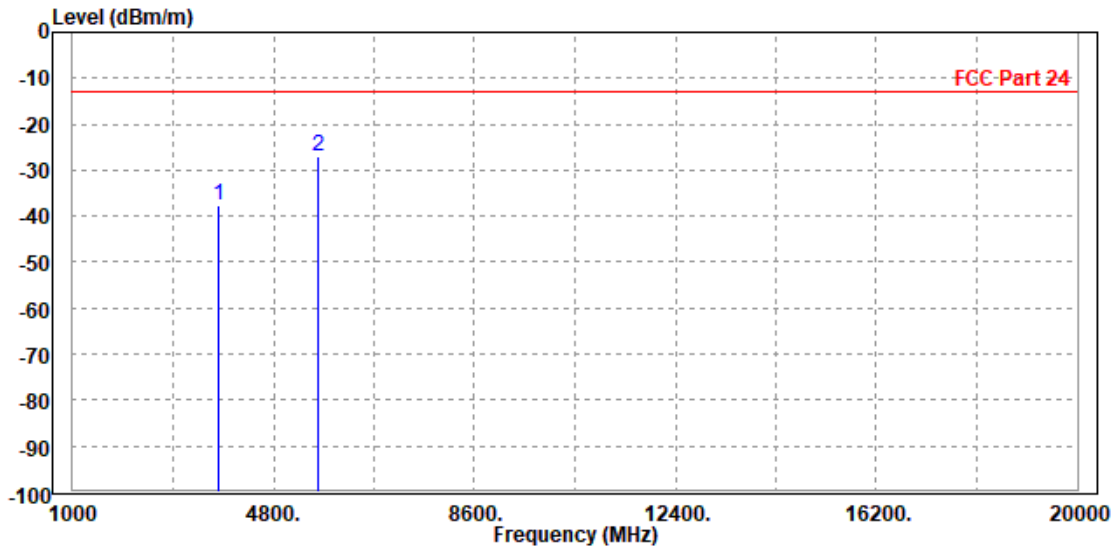
|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|-------------|--------|------------|------------|------------|--------|--------|------------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | 3774.000    | -37.01 | -45.88     | -13.00     | -24.01     | 8.87   | Peak   | Horizontal |
| 2 | PP 5647.500 | -32.89 | -43.40     | -13.00     | -19.89     | 10.51  | Peak   | Horizontal |





|  |                  |                 |                          |
|--|------------------|-----------------|--------------------------|
| MODE   | TX channel 26365 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                     | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu        |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                  |                 |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | 3774.000    | -37.70 | -46.97     | -13.00     | -24.70     | 9.27   | Peak   | Vertical  |
| 2 | PP 5647.500 | -27.04 | -37.32     | -13.00     | -14.04     | 10.28  | Peak   | Vertical  |



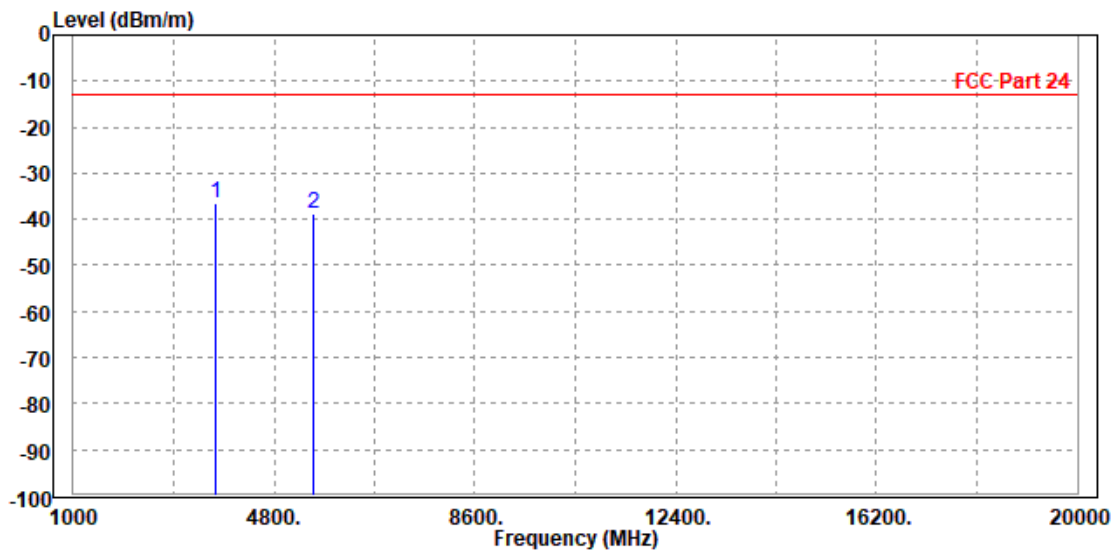


CHANNEL BANDWIDTH: 5MHz / QPSK

CH 26065

|  |                  |                 |                          |
|--|------------------|-----------------|--------------------------|
| MODE   | TX channel 26065 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                       | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu        |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                  |                 |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|-------------|--------|------------|------------|------------|--------|--------|------------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | PP 3698.000 | -36.34 | -45.12     | -13.00     | -23.34     | 8.78   | Peak   | Horizontal |
| 2 | 5557.500    | -38.76 | -48.97     | -13.00     | -25.76     | 10.21  | Peak   | Horizontal |



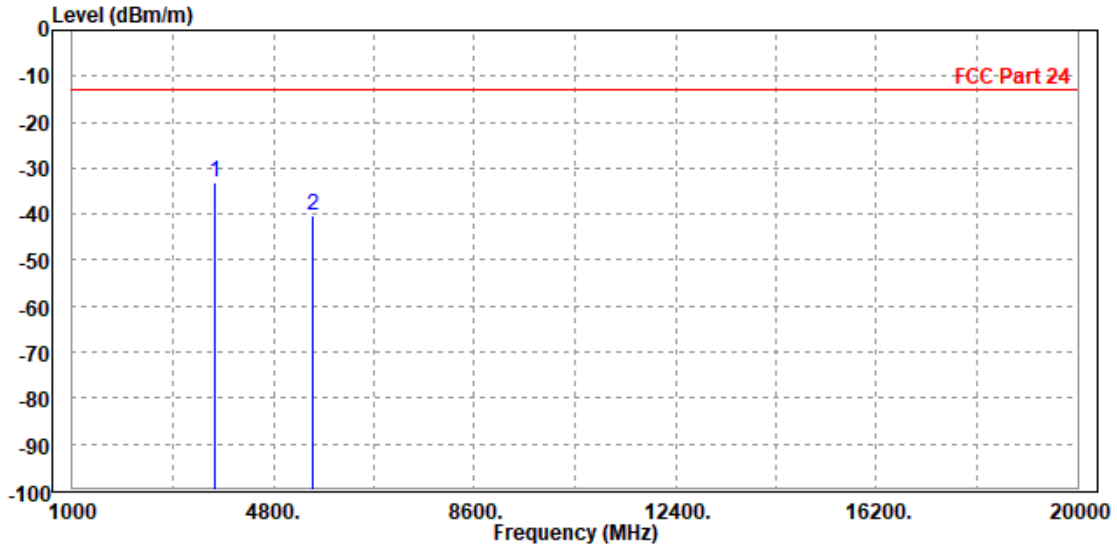


BUREAU VERITAS

Test Report No.: RF200927W002-2

|  |                  |                 |                          |
|--|------------------|-----------------|--------------------------|
| MODE   | TX channel 26065 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                     | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu        |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                  |                 |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP 3698.000 | -33.00 | -42.25     | -13.00     | -20.00     | 9.25   | Peak   | Vertical  |
| 2 | 5557.500    | -40.34 | -50.27     | -13.00     | -27.34     | 9.93   | Peak   | Vertical  |

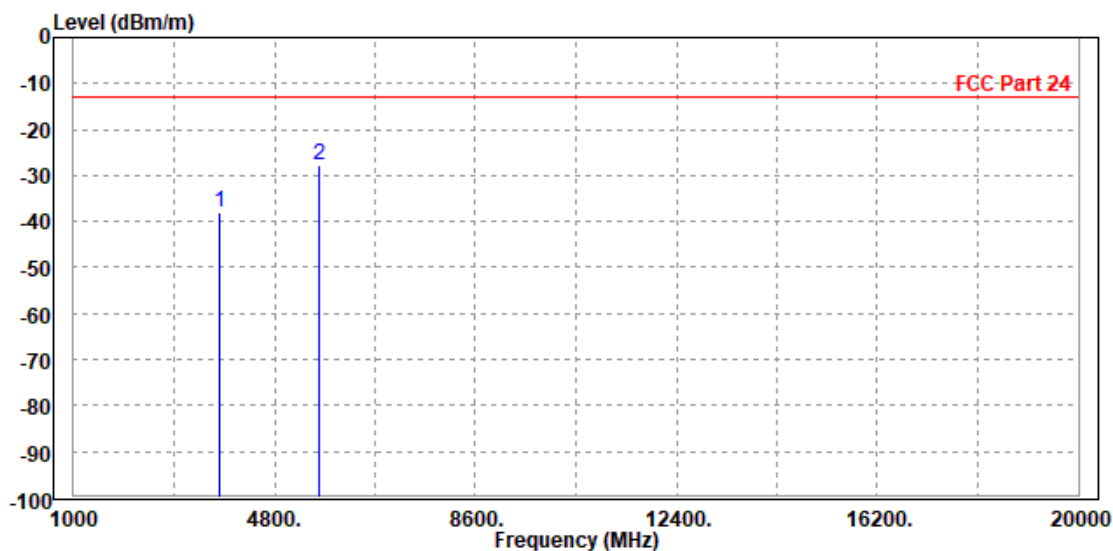




CH 26365

|  |                  |                 |                          |
|--|------------------|-----------------|--------------------------|
| MODE   | TX channel 26365 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                       | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu        |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                  |                 |                          |

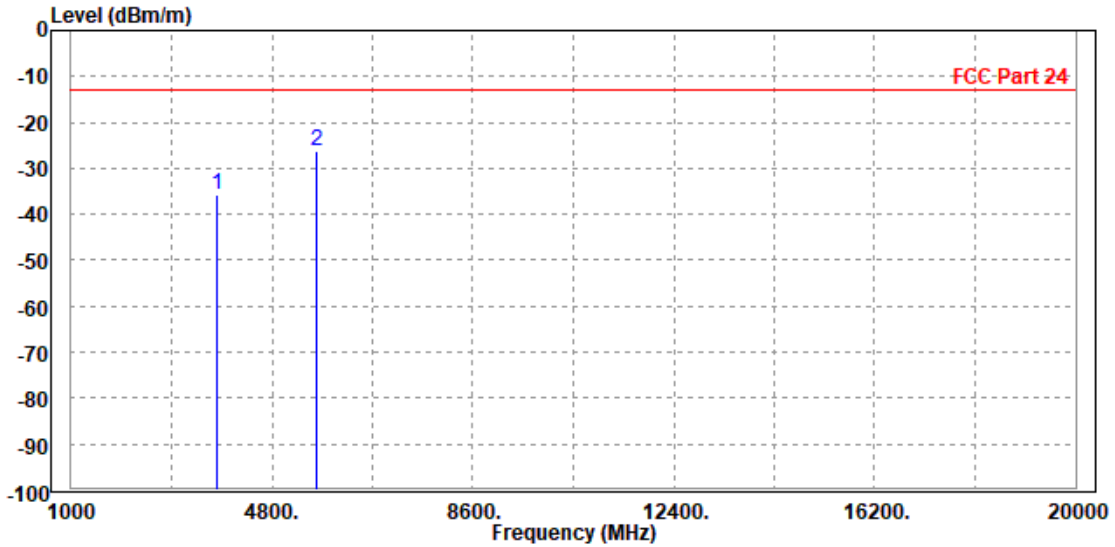
|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|------|----------|--------|------------|------------|------------|--------|--------|------------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1    | 3774.000 | -38.00 | -46.87     | -13.00     | -25.00     | 8.87   | Peak   | Horizontal |
| 2 PP | 5647.500 | -27.87 | -38.38     | -13.00     | -14.87     | 10.51  | Peak   | Horizontal |





|  |                  |                 |                          |
|--|------------------|-----------------|--------------------------|
| MODE   | TX channel 26365 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                     | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu        |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                  |                 |                          |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|----------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 3774.000 | -35.79 | -45.06     | -13.00     | -22.79     | 9.27   | Peak   | Vertical  |
| 2 PP | 5647.500 | -26.20 | -36.48     | -13.00     | -13.20     | 10.28  | Peak   | Vertical  |







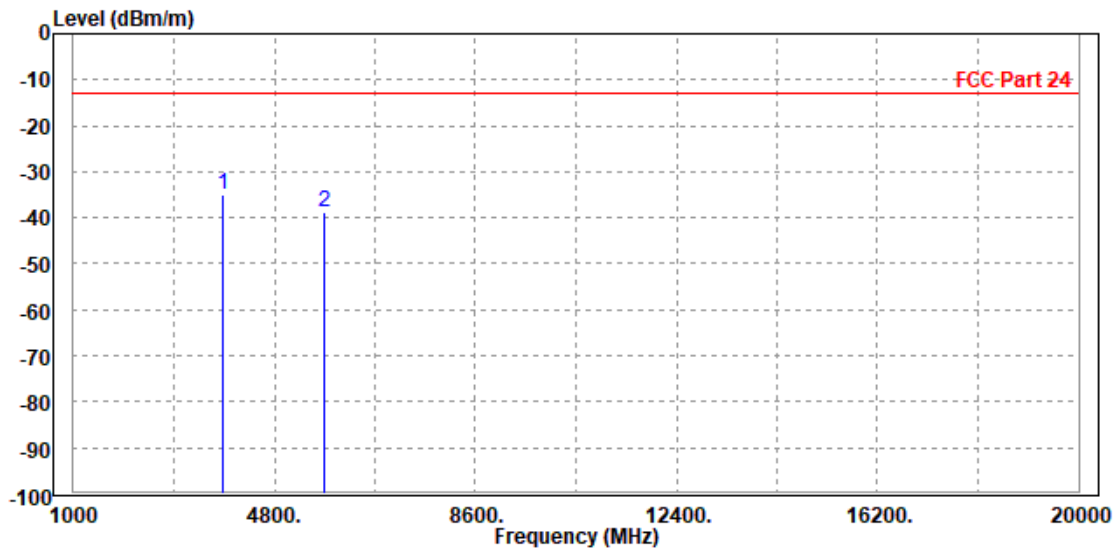
BUREAU VERITAS

Test Report No.: RF200927W002-2

CH 26665

|   |                  |                 |                          |
|---|------------------|-----------------|--------------------------|
| MODE  | TX channel 26665 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY   | Jacky Liu        |                 |                          |
| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                  |                 |                          |

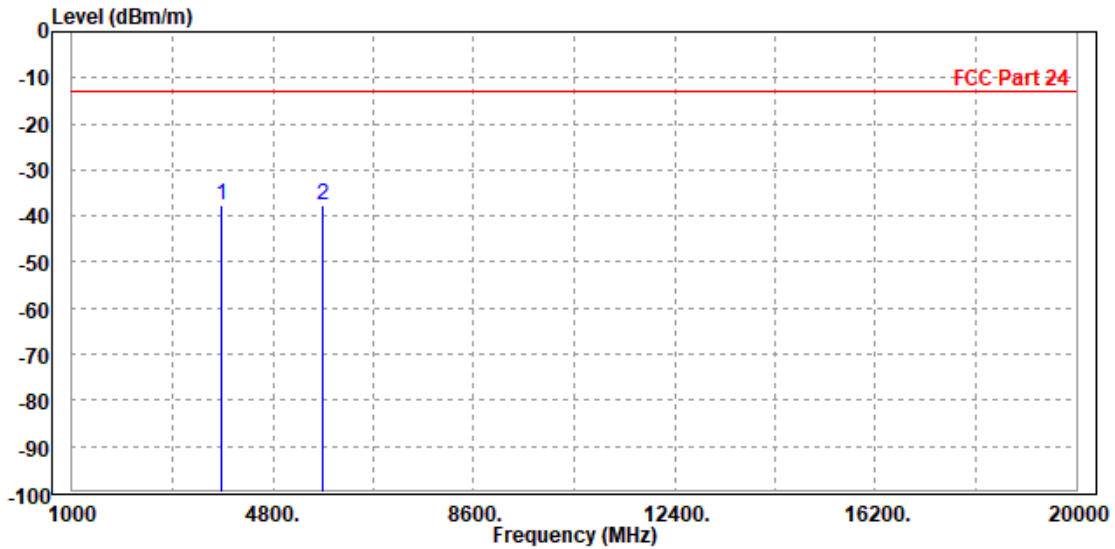
|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|-------------|--------|------------|------------|------------|--------|--------|------------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | PP 3831.000 | -35.02 | -43.95     | -13.00     | -22.02     | 8.93   | Peak   | Horizontal |
| 2 | 5737.500    | -38.62 | -49.42     | -13.00     | -25.62     | 10.80  | Peak   | Horizontal |





|  |                  |                 |                          |
|--|------------------|-----------------|--------------------------|
| MODE   | TX channel 26665 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                     | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu        |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                  |                 |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | 3831.000    | -37.73 | -47.02     | -13.00     | -24.73     | 9.29   | Peak   | Vertical  |
| 2 | PP 5737.500 | -37.69 | -48.32     | -13.00     | -24.69     | 10.63  | Peak   | Vertical  |

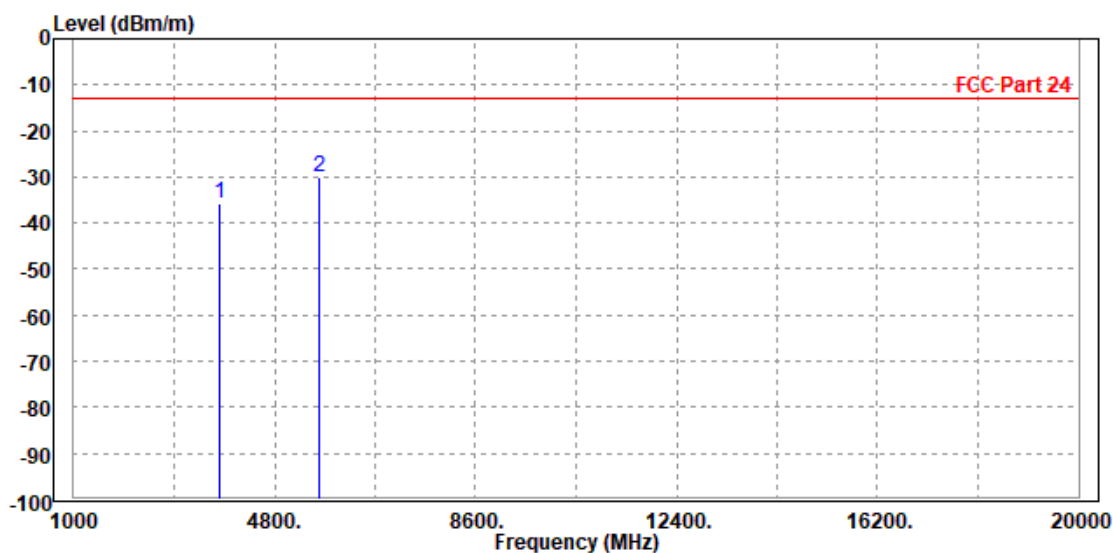




CHANNEL BANDWIDTH: 10MHz / QPSK

|  |                  |                 |                          |
|--|------------------|-----------------|--------------------------|
| MODE   | TX channel 26365 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                       | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu        |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                  |                 |                          |

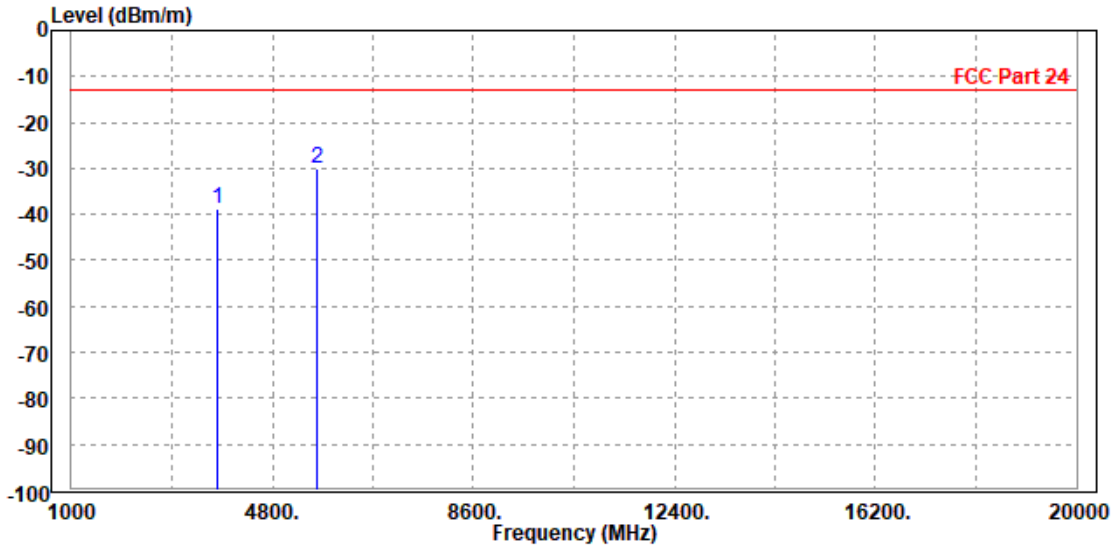
|      | Freq     | Level  | Read Level | Limit  | Over Limit | Factor | Remark | Pol/Phase  |
|------|----------|--------|------------|--------|------------|--------|--------|------------|
|      | MHz      | dBm/m  | dBm        | dBm/m  | dB         | dB/m   |        |            |
| 1    | 3774.000 | -35.65 | -44.52     | -13.00 | -22.65     | 8.87   | Peak   | Horizontal |
| 2 PP | 5647.500 | -30.20 | -40.71     | -13.00 | -17.20     | 10.51  | Peak   | Horizontal |





|  |                  |                 |                          |
|--|------------------|-----------------|--------------------------|
| MODE   | TX channel 26365 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                                     | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY  | Jacky Liu        |                 |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                  |                 |                          |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|----------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 3774.000 | -38.71 | -47.98     | -13.00     | -25.71     | 9.27   | Peak   | Vertical  |
| 2 PP | 5647.500 | -29.95 | -40.23     | -13.00     | -16.95     | 10.28  | Peak   | Vertical  |

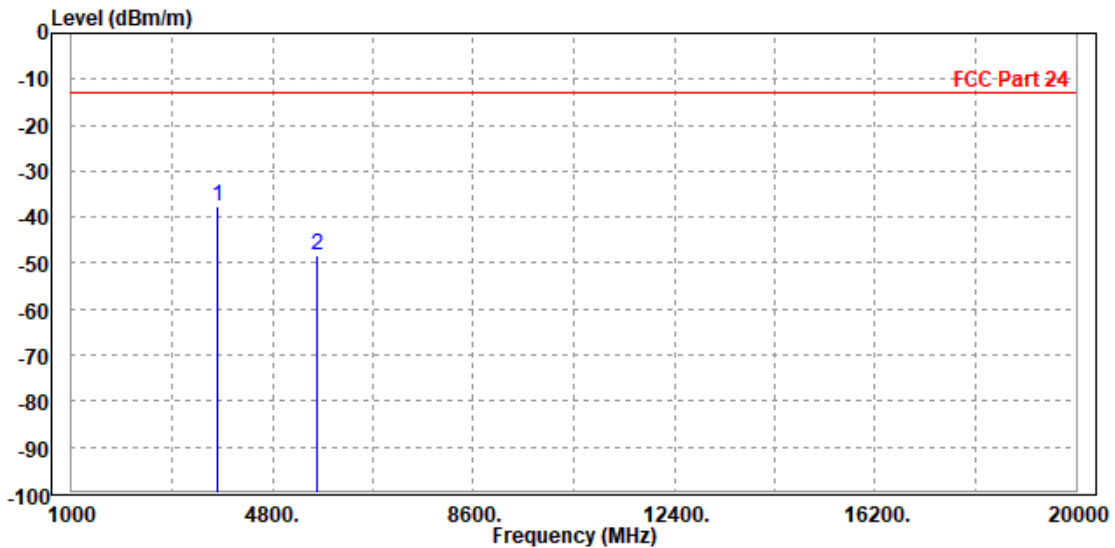




**CHANNEL BANDWIDTH: 15MHz / QPSK**

|  |                  |                        |                          |
|--|------------------|------------------------|--------------------------|
| <b>MODE</b>  | TX channel 26365 | <b>FREQUENCY RANGE</b> | Above 1000MHz            |
| <b>ENVIRONMENTAL CONDITIONS</b>                                | 23deg. C, 70%RH  | <b>INPUT POWER</b>     | DC 5V from USB Host Unit |
| <b>TESTED BY</b>   | Jacky Liu        |                        |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                  |                        |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|-------------|--------|------------|------------|------------|--------|--------|------------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | PP 3774.000 | -37.76 | -46.63     | -13.00     | -24.76     | 8.87   | Peak   | Horizontal |
| 2 | 5647.500    | -48.40 | -58.91     | -13.00     | -35.40     | 10.51  | Peak   | Horizontal |



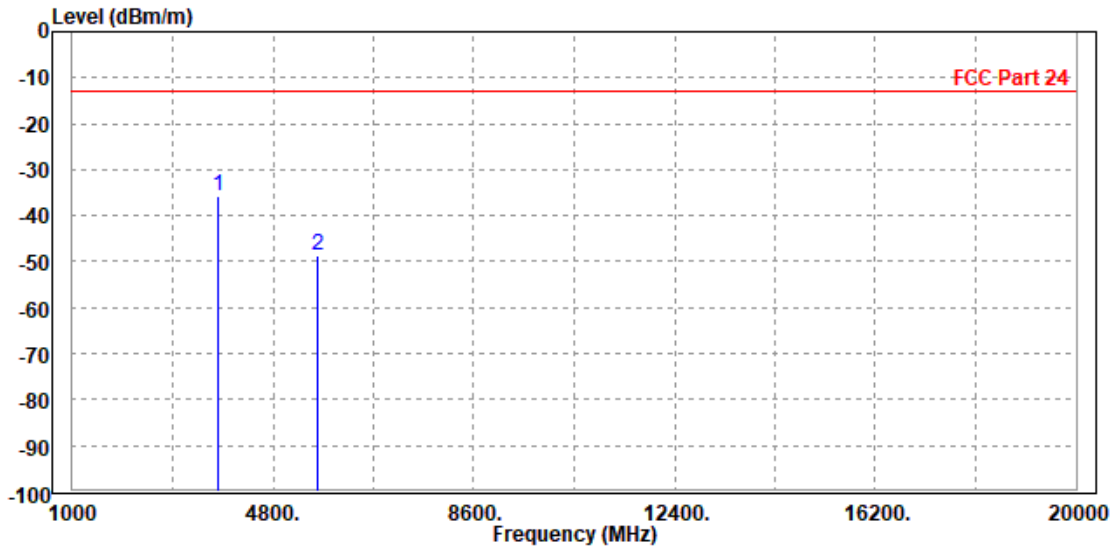


**BUREAU  
VERITAS**

Test Report No.: RF200927W002-2

|  |                  |                        |                          |
|--|------------------|------------------------|--------------------------|
| <b>MODE</b>  | TX channel 26365 | <b>FREQUENCY RANGE</b> | Above 1000MHz            |
| <b>ENVIRONMENTAL CONDITIONS</b>                              | 23deg. C, 70%RH  | <b>INPUT POWER</b>     | DC 5V from USB Host Unit |
| <b>TESTED BY</b>   | Jacky Liu        |                        |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                  |                        |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP 3774.000 | -35.59 | -44.86     | -13.00     | -22.59     | 9.27   | Peak   | Vertical  |
| 2 | 5647.500    | -48.65 | -58.93     | -13.00     | -35.65     | 10.28  | Peak   | Vertical  |

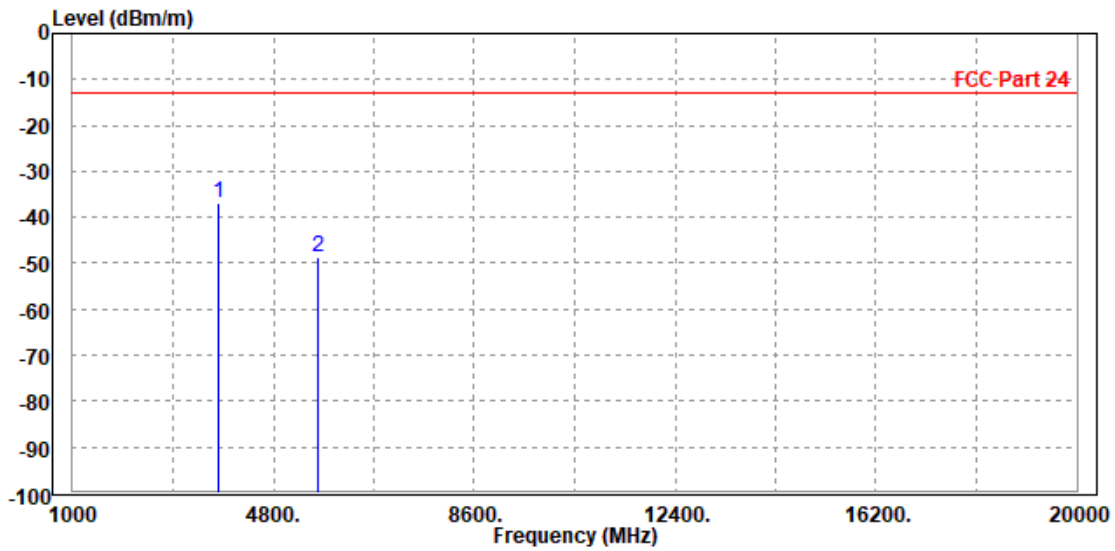




CHANNEL BANDWIDTH: 20MHz / QPSK

|   |                  |                 |                          |
|---|------------------|-----------------|--------------------------|
| MODE  | TX channel 26365 | FREQUENCY RANGE | Above 1000MHz            |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from USB Host Unit |
| TESTED BY   | Jacky Liu        |                 |                          |
| 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 | 3774.000 | -36.74 | -45.61     | -13.00     | -23.74     | 8.87   | Peak   | Horizontal |
| 2    | 5647.500 | -48.79 | -59.30     | -13.00     | -35.79     | 10.51  | Peak   | Horizontal |



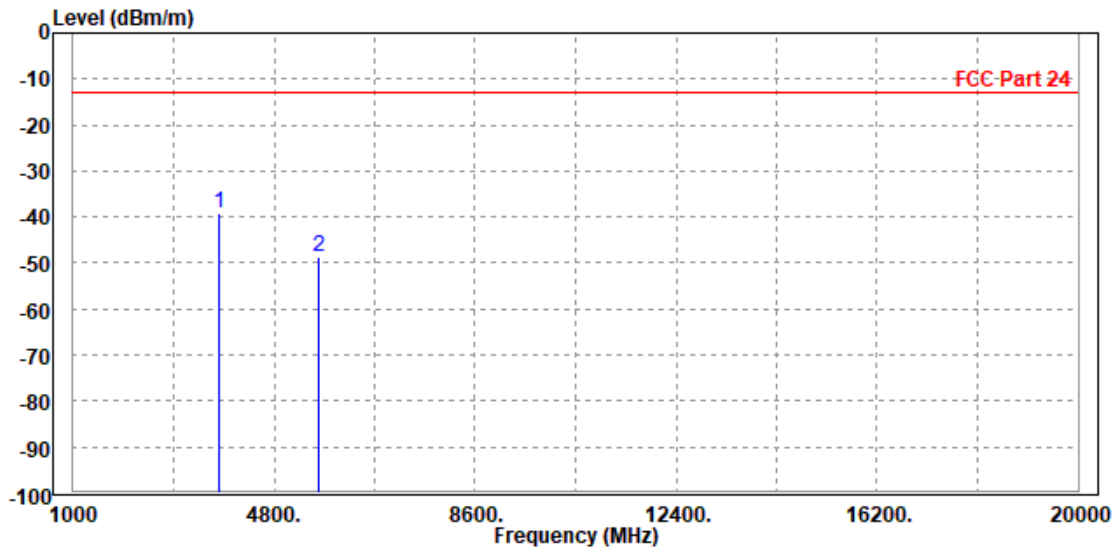


**BUREAU  
VERITAS**

Test Report No.: RF200927W002-2

|  |                  |                        |                          |
|--|------------------|------------------------|--------------------------|
| <b>MODE</b>  | TX channel 26365 | <b>FREQUENCY RANGE</b> | Above 1000MHz            |
| <b>ENVIRONMENTAL CONDITIONS</b>                              | 23deg. C, 70%RH  | <b>INPUT POWER</b>     | DC 5V from USB Host Unit |
| <b>TESTED BY</b>   | Jacky Liu        |                        |                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b> |                  |                        |                          |

|   | Freq        | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|-------------|--------|------------|------------|------------|--------|--------|-----------|
|   | MHz         | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP 3774.000 | -39.34 | -48.61     | -13.00     | -26.34     | 9.27   | Peak   | Vertical  |
| 2 | 5647.500    | -48.84 | -59.12     | -13.00     | -35.84     | 10.28  | Peak   | Vertical  |





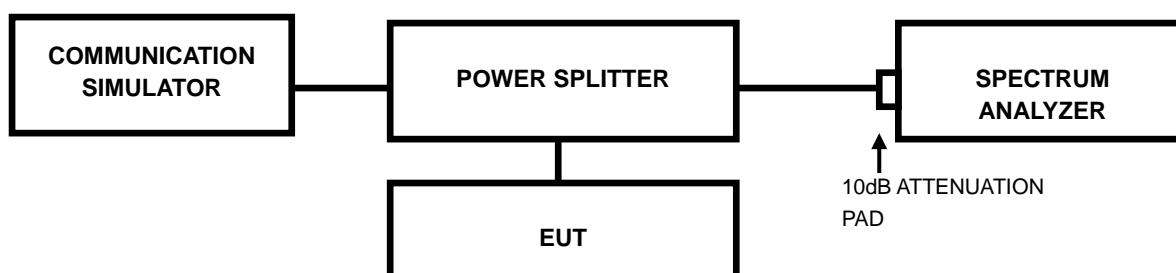


### 3.7 PEAK TO AVERAGE RATIO

#### 3.7.1 LIMITS OF peak to average ratio MEASUREMENT

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

#### 3.7.2 TEST SETUP



#### 3.7.3 TEST PROCEDURES

1. Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.



**BUREAU VERITAS** Test Report No.: RF200927W002-2

### 3.7.4 TEST RESULTS

**N/A**



**BUREAU VERITAS** Test Report No.: RF200927W002-2

## 4 INFORMATION ON THE TESTING LABORATORIES

We, BV 7LAYERS COMMUNICATIONS TECHNOLOGY (SHENZHEN) CO. LTD., were founded in 2015 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

**Shenzhen EMC/RF Lab:**

Tel: +86-755-88696566

Fax: +86-755-88696577

**Email:** [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)

**Web Site:** [www.adt.com.tw](http://www.adt.com.tw)

The address and road map of all our labs can be found in our web site also.



**BUREAU VERITAS** Test Report No.: RF200927W002-2

## **5 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB**

No any modifications are made to the EUT by the lab during the test.

**---END---**