



Test Report No.: RF180227W007-5

# FCC TEST REPORT

## (PART 27)

|            |                                                                           |
|------------|---------------------------------------------------------------------------|
| Applicant: | ENTEL PCS Telecomun s.a                                                   |
| Address:   | Avenida Costanera Sur 2760, Torre C, Piso 18, las condes. Santiago, Chile |

|                           |                                                                                                                     |
|---------------------------|---------------------------------------------------------------------------------------------------------------------|
| Manufacturer or Supplier: | Shenzhen Tinno Mobile Technology Corp.                                                                              |
| Address:                  | 4/F., H-3 Building, OCT Eastern Industrial Park. NO.1 XiangShan East Road., Nan Shan District, Shenzhen, P.R.China. |
| Product:                  | Mobile Phone                                                                                                        |
| Brand Name:               | ÖWN                                                                                                                 |
| Model Name:               | ÖWN FUN 6                                                                                                           |
| FCC ID:                   | 2A08VFUN6                                                                                                           |
| Date of tests:            | Feb. 26, 2018 ~ Mar. 15, 2018                                                                                       |

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

- ☒ FCC Part 27, Subpart C, L    ☒ ANSI/TIA/EIA-603- D  
☒ FCC Part 2                      ☒ ANSI/TIA/EIA-603-E

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

|                                                                                     |                                                                                       |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Prepared by Yuqiang Yin<br>Engineer / Mobile Department                             | Approved by Bill Yao<br>Manager / Mobile Department                                   |
|  |  |
| Date: Mar. 16, 2018                                                                 | Date: Mar. 16, 2018                                                                   |

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specifically mentioned, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification

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## RELEASE CONTROL RECORD

| ISSUE NO.      | REASON FOR CHANGE | DATE ISSUED   |
|----------------|-------------------|---------------|
| RF180227W007-5 | Original release  | Mar. 16, 2018 |

## 1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

| APPLIED STANDARD: FCC Part 27 & Part 2 |                              |        |                                                                                    |
|----------------------------------------|------------------------------|--------|------------------------------------------------------------------------------------|
| STANDARD SECTION                       | TEST TYPE AND LIMIT          | RESULT | REMARK                                                                             |
| 2.1046<br>27.50(d)(4)                  | Maximum Peak Output Power    | PASS   | Meet the requirement of limit.                                                     |
| 2.1055<br>27.54                        | Frequency Stability          | PASS   | Meet the requirement of limit.                                                     |
| 2.1049<br>27.53(h)                     | Occupied Bandwidth           | PASS   | Meet the requirement of limit.                                                     |
| 27.50(d)(5)                            | Peak to average ratio        | PASS   | Meet the requirement of limit.                                                     |
| 27.53(h)                               | Band Edge Measurements       | PASS   | Meet the requirement of limit.                                                     |
| 2.1051<br>27.53(h)                     | Conducted Spurious Emissions | PASS   | Meet the requirement of limit.                                                     |
| 2.1053<br>27.53(h)                     | Radiated Spurious Emissions  | PASS   | Meet the requirement of limit.<br>Minimum passing margin is -33.59dB at 42.230MHz. |

### 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         | FREQUENCY     | UNCERTAINTY |
|---------------------|---------------|-------------|
| Conducted emissions | 9kHz~30MHz    | 2.66dB      |
| Radiated emissions  | 9KHz ~ 30MHz  | 2.68dB      |
|                     | 30MHz ~ 1GMHz | 3.26dB      |
|                     | 1GHz ~ 18GHz  | 4.48dB      |
|                     | 18GHz ~ 40GHz | 4.12dB      |

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

## 1.2 TEST SITE AND INSTRUMENTS

| Equipment                                   | Manufacturer | Model No.                           | Serial No.                      | Last Cal.  | Next Cal.  |
|---------------------------------------------|--------------|-------------------------------------|---------------------------------|------------|------------|
| MXE EMI Receiver                            | KEYSIGHT     | N9038A-544                          | MY54450026                      | Mar. 01,18 | Feb. 28,19 |
| EXA Signal Analyzer                         | KEYSIGHT     | N9010A-544                          | MY54510332                      | Mar. 01,18 | Feb. 28,19 |
| Bilog Antenna 1                             | ETS-LINDGREN | 3143B                               | 00161964                        | Nov. 26,16 | Nov. 25,18 |
| Bilog Antenna 2                             | ETS-LINDGREN | 3143B                               | 00161965                        | Nov. 26,16 | Nov. 25,18 |
| Horn Antenna 1                              | ETS-LINDGREN | 3117                                | 00168728                        | Nov. 26,16 | Nov. 25,18 |
| Horn Antenna 2                              | ETS-LINDGREN | 3117                                | 00168692                        | Nov. 26,16 | Nov. 25,18 |
| Loop antenna                                | Daze         | ZN30900A                            | 0708                            | Nov. 20,17 | Nov. 19,18 |
| Horn Antenna<br>(18GHz-40GHz)               | N/A          | QWH-SL-18-40<br>-K-SG/QMS-00<br>361 | 15433                           | Dec. 16,16 | Dec. 15,18 |
| Radio<br>Communication<br>Analyzer          | ANRITSU      | MT8820C                             | 6201465426                      | Mar. 01,18 | Feb. 28,19 |
| Signal Pre-Amplifier                        | EMSI         | EMC 9135                            | 980249                          | Jul. 24,17 | Jul. 23,18 |
| Signal Pre-Amplifier                        | EMSI         | EMC 012645B                         | 980257                          | Jul. 24,17 | Jul. 23,18 |
| Signal Pre-Amplifier                        | EMSI         | EMC 184045B                         | 980259                          | Jul. 24,17 | Jul. 23,18 |
| 3m Semi-anechoic<br>Chamber                 | ETS-LINDGREN | 9m*6m*6m                            | Euroshieldpn-<br>CT0001143-1216 | May 06,17  | May 05,18  |
| Test Software                               | E3           | V 9.160323                          | N/A                             | N/A        | N/A        |
| Test Software                               | ADT          | ADT_Radiated<br>V7.6.15.9.2         | N/A                             | N/A        | N/A        |
| 10dB Attenuator                             | JFW/USA      | 50HF-010-SM<br>A                    | 1505                            | Jul. 24,17 | Jul. 23,18 |
| Power Meter                                 | Anritsu      | ML2495A                             | 1506002                         | Mar. 01,18 | Feb. 28,19 |
| Power Sensor                                | Anritsu      | MA2411B                             | 1339352                         | Mar. 01,18 | Feb. 28,19 |
| Humid & Temp<br>Programmable Tester         | Juyi         | ITH-120-45-CP<br>-AR                | IAA1504-001                     | Jul. 18,17 | Jul. 17,18 |
| MXG Analog<br>Microwave<br>Signal Generator | KEYSIGHT     | N5183A                              | MY50143024                      | Mar. 01,18 | Feb. 28,19 |

- 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.

## 2 GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

|                              |                                                               |                                 |
|------------------------------|---------------------------------------------------------------|---------------------------------|
| <b>PRODUCT</b>               | Mobile Phone                                                  |                                 |
| <b>MODEL NAME</b>            | ÖWN FUN 6                                                     |                                 |
| <b>POWER SUPPLY</b>          | 5Vdc (adapter or host equipment)<br>4.35Vdc (Li-ion, battery) |                                 |
| <b>MODULATION TECHNOLOGY</b> | <b>WCDMA IV</b>                                               | BPSK                            |
|                              | <b>LTE</b>                                                    | QPSK, 16QAM                     |
| <b>FREQUENCY RANGE</b>       | <b>WCDMA IV</b>                                               | 1712.4MHz ~ 1752.6MHz           |
|                              | <b>LTE Band 4<br/>Channel Bandwidth: 1.4MHz</b>               | 1710.7MHz ~ 1754.3MHz           |
|                              | <b>LTE Band 4<br/>Channel Bandwidth: 3MHz</b>                 | 1711.5MHz ~ 1753.5MHz           |
|                              | <b>LTE Band 4<br/>Channel Bandwidth: 5MHz</b>                 | 1712.5MHz ~ 1752.5MHz           |
|                              | <b>LTE Band 4<br/>Channel Bandwidth: 10MHz</b>                | 1715.0MHz ~ 1750.0MHz           |
|                              | <b>LTE Band 4<br/>Channel Bandwidth: 15MHz</b>                | 1717.5MHz ~ 1747.5MHz           |
|                              | <b>LTE Band 4<br/>Channel Bandwidth: 20MHz</b>                | 1720.0MHz ~ 1745.0MHz           |
|                              | <b>WCDMA IV</b>                                               | 4M18F9W                         |
| <b>EMISSION DESIGNATOR</b>   | <b>LTE Band 4<br/>Channel Bandwidth: 1.4MHz</b>               | QPSK: 1M09G7D<br>16QAM: 1M08W7D |
|                              | <b>LTE Band 4<br/>Channel Bandwidth: 3MHz</b>                 | QPSK: 2M68G7D<br>16QAM: 2M68W7D |
|                              | <b>LTE Band 4<br/>Channel Bandwidth: 5MHz</b>                 | QPSK: 4M49G7D<br>16QAM: 4M49W7D |
|                              | <b>LTE Band 4<br/>Channel Bandwidth: 10MHz</b>                | QPSK: 8M97G7D<br>16QAM: 8M95W7D |
|                              | <b>LTE Band 4<br/>Channel Bandwidth: 15MHz</b>                | QPSK: 13M4G7D<br>16QAM: 13M4W7D |
|                              | <b>LTE Band 4<br/>Channel Bandwidth: 20MHz</b>                | QPSK: 17M9G7D<br>16QAM: 17M9W7D |
|                              | <b>WCDMA IV</b>                                               | 1119mW                          |
|                              | <b>LTE Band 4<br/>Channel Bandwidth: 1.4MHz</b>               | 317mW                           |
| <b>MAX. ERP/EIRP POWER</b>   | <b>LTE Band 4<br/>Channel Bandwidth: 3MHz</b>                 | 322mW                           |

|                         |                                                                                             |       |
|-------------------------|---------------------------------------------------------------------------------------------|-------|
|                         | <b>LTE Band 4<br/>Channel Bandwidth: 5MHz</b>                                               | 316mW |
|                         | <b>LTE Band 4<br/>Channel Bandwidth: 10MHz</b>                                              | 301mW |
|                         | <b>LTE Band 4<br/>Channel Bandwidth: 15MHz</b>                                              | 283mW |
|                         | <b>LTE Band 4<br/>Channel Bandwidth: 20MHz</b>                                              | 243mW |
| <b>ANTENNA TYPE</b>     | FPC Antenna with 1dBi                                                                       |       |
| <b>HW VERSION</b>       | V1.0                                                                                        |       |
| <b>SW VERSION</b>       | OWN_FUN_6_7.1_03                                                                            |       |
| <b>ACCESSORY DEVICE</b> | Refer to note as below                                                                      |       |
| <b>DATA CABLE</b>       | USB cable: non-shielded, detachable, 1.0m<br>Earphone cable: non-shielded, detachable, 1.2m |       |

**NOTE:**

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- The EUT was powered by the following adapters:

| ADAPTER 1      |                    |
|----------------|--------------------|
| <b>BRAND:</b>  | öwn                |
| <b>MODEL:</b>  | TN050100E5         |
| <b>NPUT:</b>   | AC 100-240V, 150mA |
| <b>OUTPUT:</b> | DC 5V, 1000mA      |

| ADAPTER 2      |                    |
|----------------|--------------------|
| <b>BRAND:</b>  | öwn                |
| <b>MODEL:</b>  | TN050100U5         |
| <b>NPUT:</b>   | AC 100-240V, 150mA |
| <b>OUTPUT:</b> | DC 5V, 1000mA      |

- The EUT matched the following USB cable and earphone:

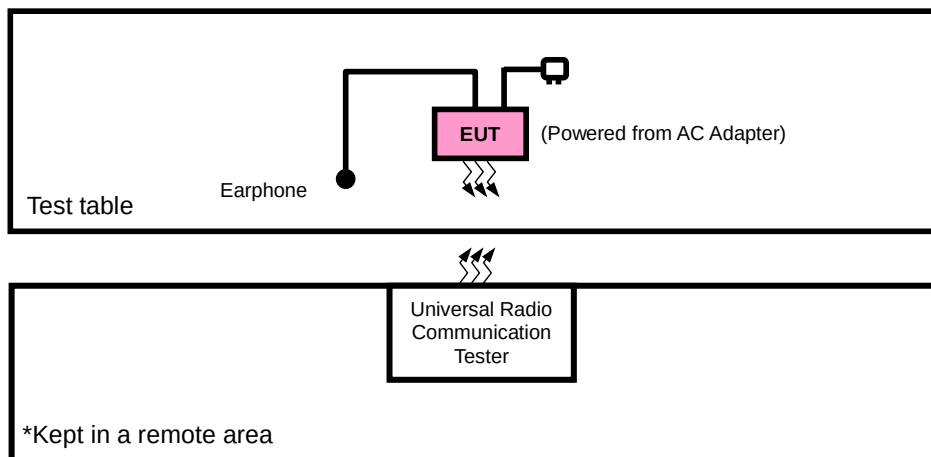
| USB CABLE           |           |
|---------------------|-----------|
| <b>BRAND:</b>       | N/A       |
| <b>MODEL:</b>       | N/A       |
| <b>SIGNAL LINE:</b> | 1.0 METER |

| EARPHONE            |            |
|---------------------|------------|
| <b>BRAND:</b>       | N/A        |
| <b>MODEL:</b>       | HF-B1070-B |
| <b>SIGNAL LINE:</b> | 1.2 METER  |

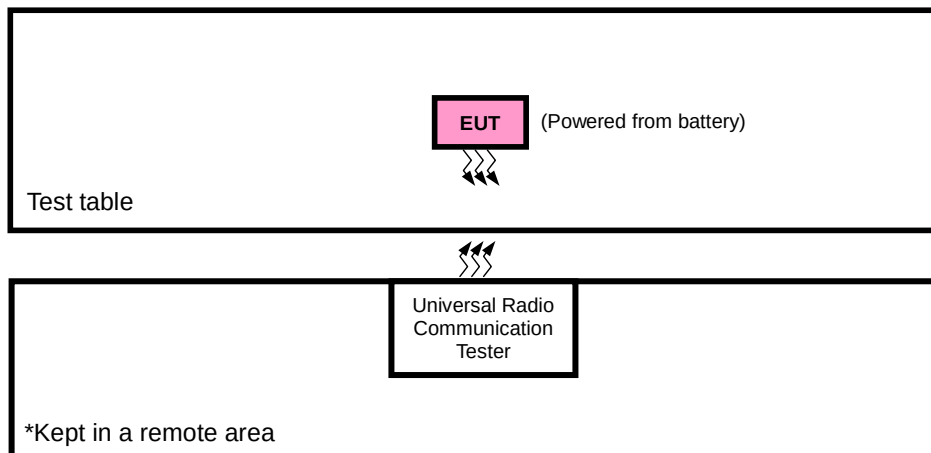
- For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

## 2.2 CONFIGURATION OF SYSTEM UNDER TEST

### FOR RADIATION EMISSION TEST



### FOR CONDUCTED & E.R.P./E.I.R.P 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    |
| 2   | PC        | HP       | A6608CN   | 3CR83825X3 | N/A    |

| NO. | SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS |
|-----|-----------------------------------------------------|
| 1   | DC Line: Unshielded, Detachable 1.0m                |
| 2   | AC Line: Unshielded, Detachable 1.5m                |

**NOTE:**

1. All power cords of the above support units are non shielded (1.8m).

## 2.4 DESCRIPTION OF TEST MODES

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

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

### WCDMA MODE

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

**LTE BAND 4**

| EUT<br>CONFIGURE<br>MODE | TEST ITEM                | AVAILABLE<br>CHANNEL | TESTED CHANNEL      | CHANNEL<br>BANDWIDTH | MODULATION  | MODE                 |
|--------------------------|--------------------------|----------------------|---------------------|----------------------|-------------|----------------------|
| B                        | EIRP                     | 19957 to 20393       | 19957, 20175, 20393 | 1.4MHz               | QPSK, 16QAM | 1 RB / 0 RB Offset   |
|                          |                          | 19965 to 20385       | 19965, 20175, 20385 | 3MHz                 | QPSK, 16QAM | 1 RB / 0 RB Offset   |
|                          |                          | 19975 to 20375       | 19975, 20175, 20375 | 5MHz                 | QPSK, 16QAM | 1 RB / 0 RB Offset   |
|                          |                          | 20000 to 20350       | 20000, 20175, 20350 | 10MHz                | QPSK, 16QAM | 1 RB / 0 RB Offset   |
|                          |                          | 20025 to 20325       | 20025, 20175, 20325 | 15MHz                | QPSK, 16QAM | 1 RB / 0 RB Offset   |
|                          |                          | 20050 to 20300       | 20050, 20175, 20300 | 20MHz                | QPSK, 16QAM | 1 RB / 0 RB Offset   |
| B                        | FREQUENCY<br>STABILITY   | 19957 to 20393       | 19957, 20393        | 1.4MHz               | QPSK        | 1 RB / 0 RB Offset   |
|                          |                          | 19965 to 20385       | 19965, 20385        | 3MHz                 | QPSK        | 1 RB / 0 RB Offset   |
|                          |                          | 19975 to 20375       | 19975, 20375        | 5MHz                 | QPSK        | 1 RB / 0 RB Offset   |
|                          |                          | 20000 to 20350       | 20000, 20350        | 10MHz                | QPSK        | 1 RB / 0 RB Offset   |
|                          |                          | 20025 to 20325       | 20025, 20325        | 15MHz                | QPSK        | 1 RB / 0 RB Offset   |
|                          |                          | 20050 to 20300       | 20050, 20300        | 20MHz                | QPSK        | 1 RB / 0 RB Offset   |
| B                        | OCCUPIED<br>BANDWIDTH    | 19957 to 20393       | 19957, 20175, 20393 | 1.4MHz               | QPSK, 16QAM | 6 RB / 0 RB Offset   |
|                          |                          | 19965 to 20385       | 19965, 20175, 20385 | 3MHz                 | QPSK, 16QAM | 15 RB / 0 RB Offset  |
|                          |                          | 19975 to 20375       | 19975, 20175, 20375 | 5MHz                 | QPSK, 16QAM | 25 RB / 0 RB Offset  |
|                          |                          | 20000 to 20350       | 20000, 20175, 20350 | 10MHz                | QPSK, 16QAM | 50 RB / 0 RB Offset  |
|                          |                          | 20025 to 20325       | 20025, 20175, 20325 | 15MHz                | QPSK, 16QAM | 75 RB / 0 RB Offset  |
|                          |                          | 20050 to 20300       | 20050, 20175, 20300 | 20MHz                | QPSK, 16QAM | 100 RB / 0 RB Offset |
| B                        | PEAK TO<br>AVERAGE RATIO | 19957 to 20393       | 19957, 20175, 20393 | 1.4MHz               | QPSK, 16QAM | 1 RB / 0 RB Offset   |
|                          |                          | 19965 to 20385       | 19965, 20175, 20385 | 3MHz                 | QPSK, 16QAM | 1 RB / 0 RB Offset   |
|                          |                          | 19975 to 20375       | 19975, 20175, 20375 | 5MHz                 | QPSK, 16QAM | 1 RB / 0 RB Offset   |
|                          |                          | 20000 to 20350       | 20000, 20175, 20350 | 10MHz                | QPSK, 16QAM | 1 RB / 0 RB Offset   |
|                          |                          | 20025 to 20325       | 20025, 20175, 20325 | 15MHz                | QPSK, 16QAM | 1 RB / 0 RB Offset   |
|                          |                          | 20050 to 20300       | 20050, 20175, 20300 | 20MHz                | QPSK, 16QAM | 1 RB / 0 RB Offset   |
| B                        | BAND EDGE                | 19957 to 20393       | 19957               | 1.4MHz               | QPSK        | 1 RB / 0 RB Offset   |
|                          |                          |                      |                     |                      |             | 6 RB / 0 RB Offset   |
|                          |                          | 19957 to 20393       | 20393               | 1.4MHz               | QPSK        | 1 RB / 5 RB Offset   |
|                          |                          |                      |                     |                      |             | 6 RB / 0 RB Offset   |
|                          |                          | 19965 to 20385       | 19965               | 3MHz                 | QPSK        | 1 RB / 0 RB Offset   |
|                          |                          |                      |                     |                      |             | 15 RB / 0 RB Offset  |
|                          |                          | 19965 to 20385       | 20385               | 3MHz                 | QPSK        | 1 RB / 14 RB Offset  |
|                          |                          |                      |                     |                      |             | 15 RB / 0 RB Offset  |
|                          |                          | 19975 to 20375       | 19975               | 5MHz                 | QPSK        | 1 RB / 0 RB Offset   |
|                          |                          |                      |                     |                      |             | 25 RB / 0 RB Offset  |
|                          |                          | 19975 to 20375       | 20375               | 5MHz                 | QPSK        | 1 RB / 24 RB Offset  |
|                          |                          |                      |                     |                      |             | 25 RB / 0 RB Offset  |
|                          |                          | 20000 to 20350       | 20000               | 10MHz                | QPSK        | 1 RB / 0 RB Offset   |
|                          |                          |                      |                     |                      |             | 50 RB / 0 RB Offset  |
|                          |                          | 20000 to 20350       | 20350               | 10MHz                | QPSK        | 1 RB / 49 RB Offset  |
|                          |                          |                      |                     |                      |             | 50 RB / 0 RB Offset  |

|   |                    |                |                     |        |      |                      |
|---|--------------------|----------------|---------------------|--------|------|----------------------|
| B | BAND EDGE          | 20025 to 20325 | 20025               | 15MHz  | QPSK | 1 RB / 0 RB Offset   |
|   |                    |                | 20325               | 15MHz  | QPSK | 75 RB / 0 RB Offset  |
|   |                    | 20050 to 20300 | 20050               | 20MHz  | QPSK | 1 RB / 74 RB Offset  |
|   |                    |                | 20300               | 20MHz  | QPSK | 75 RB / 0 RB Offset  |
|   |                    |                | 20050               | 20MHz  | QPSK | 1 RB / 0 RB Offset   |
|   |                    |                | 20300               | 20MHz  | QPSK | 100 RB / 0 RB Offset |
| B | CONDCUDED EMISSION | 19957 to 20393 | 19957, 20175, 20393 | 1.4MHz | QPSK | 1 RB / 0 RB Offset   |
|   |                    | 19965 to 20385 | 19965, 20175, 20385 | 3MHz   | QPSK | 1 RB / 0 RB Offset   |
|   |                    | 19975 to 20375 | 19975, 20175, 20375 | 5MHz   | QPSK | 1 RB / 0 RB Offset   |
|   |                    | 20000 to 20350 | 20000, 20175, 20350 | 10MHz  | QPSK | 1 RB / 0 RB Offset   |
|   |                    | 20025 to 20325 | 20025, 20175, 20325 | 15MHz  | QPSK | 1 RB / 0 RB Offset   |
|   |                    | 20050 to 20300 | 20050, 20175, 20300 | 20MHz  | QPSK | 1 RB / 0 RB Offset   |
| A | RADIATED EMISSION  | 19957 to 20393 | 20175               | 1.4MHz | QPSK | 1 RB / 0 RB Offset   |
|   |                    | 19965 to 20385 | 20175               | 3MHz   | QPSK | 1 RB / 0 RB Offset   |
|   |                    | 19975 to 20375 | 20175               | 5MHz   | QPSK | 1 RB / 0 RB Offset   |
|   |                    | 20000 to 20350 | 20000, 20175, 20350 | 10MHz  | QPSK | 1 RB / 0 RB Offset   |
|   |                    | 20025 to 20325 | 20175               | 15MHz  | QPSK | 1 RB / 0 RB Offset   |
|   |                    | 20050 to 20300 | 20175               | 20MHz  | QPSK | 1 RB / 0 RB Offset   |

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

**TEST CONDITION:**

| TEST ITEM             | ENVIRONMENTAL CONDITIONS | INPUT POWER         | TESTED BY   |
|-----------------------|--------------------------|---------------------|-------------|
| EIRP(ERP)             | 24deg. C, 60%RH          | 3.8Vdc from Battery | Star Le     |
| FREQUENCY STABILITY   | 24deg. C, 61%RH          | DC 3.5V/3.8V/4.2V   | Wenliang Wu |
| OCCUPIED BANDWIDTH    | 24deg. C, 61%RH          | 3.8Vdc from Battery | Wenliang Wu |
| PEAK TO AVERAGE RATIO | 24deg. C, 61%RH          | 3.8Vdc from Battery | Wenliang Wu |
| BAND EDGE             | 24deg. C, 61%RH          | 3.8Vdc from Battery | Wenliang Wu |
| CONDCUDED EMISSION    | 24deg. C, 61%RH          | 3.8Vdc from Battery | Wenliang Wu |
| RADIATED EMISSION     | 24deg. C, 60%RH          | DC 5V from adaptor  | Star Le     |



Test Report No.: RF180227W007-5

## 2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

**FCC 47 CFR Part 2**

**FCC 47 CFR Part 27**

**KDB 971168 D01 Power Meas License Digital Systems v03**

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

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

**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

Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.

Portable stations (hand-held devices) operating in the 699-716 MHz bands are limited to 3 watts ERP.

##### 3.1.2 TEST PROCEDURES

###### EIRP / ERP MEASUREMENT:

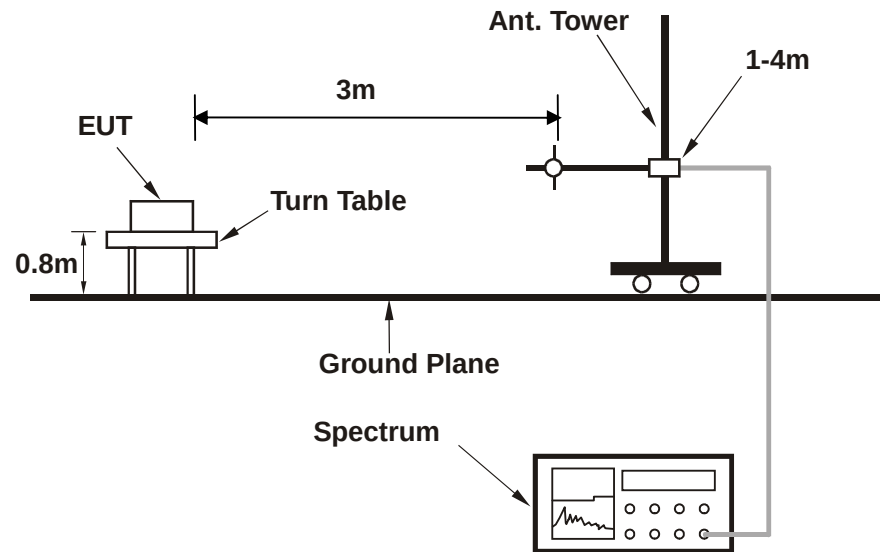
- a. The EUT was set up for the maximum power with LTE link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high operational frequency range). RBW and VBW is 10MHz for LTE.
- b. E.I.R.P power measurement. In the semi-anechoic 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.
- c. 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
- d.  $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$
- e.  $E.R.P = E.I.R.P - 2.15 \text{ dB}$

###### CONDUCTED POWER MEASUREMENT:

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

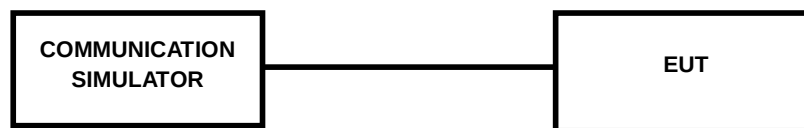
### 3.1.3 TEST SETUP

#### EIRP / ERP MEASUREMENT:



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

#### CONDUCTED POWER MEASUREMENT:



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



Test Report No.: RF180227W007-5

### 3.1.4 TEST RESULTS

#### AVERAGE CONDUCTED OUTPUT POWER (dBm)

| Band            | WCDMA IV |        |              |
|-----------------|----------|--------|--------------|
| Channel         | 1312     | 1413   | 1513         |
| Frequency (MHz) | 1712.4   | 1732.6 | 1752.6       |
| RMC 12.2K       | 22.49    | 22.51  | <b>22.53</b> |
| HSPA            |          |        |              |
| HSDPA Subtest-1 | 21.52    | 21.54  | 21.56        |
| HSDPA Subtest-2 | 21.50    | 21.52  | 21.54        |
| HSDPA Subtest-3 | 21.06    | 21.08  | 21.10        |
| HSDPA Subtest-4 | 21.00    | 21.02  | 21.04        |
| HSUPA Subtest-1 | 21.47    | 21.49  | 21.51        |
| HSUPA Subtest-2 | 19.54    | 19.56  | 19.58        |
| HSUPA Subtest-3 | 20.50    | 20.52  | 20.54        |
| HSUPA Subtest-4 | 19.50    | 19.52  | 19.54        |
| HSUPA Subtest-5 | 21.45    | 21.47  | 21.49        |

| LTE Band 4 |            |         |           |                         |                         |                         |     |
|------------|------------|---------|-----------|-------------------------|-------------------------|-------------------------|-----|
| BW         | Modulation | RB Size | RB Offset | Low CH<br>19957         | Mid CH<br>20175         | High CH<br>20393        | MPR |
|            |            |         |           | Frequency<br>1710.7 MHz | Frequency<br>1732.5 MHz | Frequency<br>1754.3 MHz |     |
| 1.4MHz     | QPSK       | 1       | 0         | 21.40                   | 21.47                   | 21.51                   | 0   |
|            |            | 1       | 2         | 21.71                   | 21.78                   | 21.82                   | 0   |
|            |            | 1       | 5         | 21.30                   | 21.37                   | 21.41                   | 0   |
|            |            | 3       | 0         | 21.38                   | 21.45                   | 21.49                   | 0   |
|            |            | 3       | 1         | 21.69                   | 21.76                   | 21.80                   | 0   |
|            |            | 3       | 3         | 21.28                   | 21.35                   | 21.39                   | 0   |
|            |            | 6       | 0         | 20.69                   | 20.76                   | 20.80                   | 1   |
|            | 16QAM      | 1       | 0         | 20.63                   | 20.70                   | 20.74                   | 1   |
|            |            | 1       | 2         | 20.92                   | 20.99                   | 21.03                   | 1   |
|            |            | 1       | 5         | 20.58                   | 20.65                   | 20.69                   | 1   |
|            |            | 3       | 0         | 20.62                   | 20.69                   | 20.73                   | 1   |
|            |            | 3       | 1         | 20.91                   | 20.98                   | 21.02                   | 1   |
|            |            | 3       | 3         | 20.57                   | 20.64                   | 20.68                   | 1   |
|            |            | 6       | 0         | 19.66                   | 19.73                   | 19.77                   | 2   |
| BW         | Modulation | RB Size | RB Offset | Low CH<br>19965         | Mid CH<br>20175         | High CH<br>20385        | MPR |
|            |            |         |           | Frequency<br>1711.5 MHz | Frequency<br>1732.5 MHz | Frequency<br>1753.5 MHz |     |
| 3 MHz      | QPSK       | 1       | 0         | 21.41                   | 21.48                   | 21.52                   | 0   |
|            |            | 1       | 7         | 21.72                   | 21.79                   | 21.83                   | 0   |
|            |            | 1       | 14        | 21.31                   | 21.38                   | 21.42                   | 0   |
|            |            | 8       | 0         | 20.78                   | 20.85                   | 20.89                   | 1   |
|            |            | 8       | 3         | 20.72                   | 20.79                   | 20.83                   | 1   |
|            |            | 8       | 7         | 20.66                   | 20.73                   | 20.77                   | 1   |
|            |            | 15      | 0         | 20.70                   | 20.77                   | 20.81                   | 1   |
|            | 16QAM      | 1       | 0         | 20.64                   | 20.71                   | 20.75                   | 1   |
|            |            | 1       | 7         | 20.93                   | 21.00                   | 21.04                   | 1   |
|            |            | 1       | 14        | 20.59                   | 20.66                   | 20.70                   | 1   |
|            |            | 8       | 0         | 19.72                   | 19.79                   | 19.83                   | 2   |
|            |            | 8       | 3         | 19.68                   | 19.75                   | 19.79                   | 2   |
|            |            | 8       | 7         | 19.61                   | 19.68                   | 19.72                   | 2   |
|            |            | 15      | 0         | 19.67                   | 19.74                   | 19.78                   | 2   |

| LTE Band 4 |            |         |           |                         |                         |                         |     |
|------------|------------|---------|-----------|-------------------------|-------------------------|-------------------------|-----|
| BW         | Modulation | RB Size | RB Offset | Low CH<br>19975         | Mid CH<br>20175         | High CH<br>20375        | MPR |
|            |            |         |           | Frequency<br>1712.5 MHz | Frequency<br>1732.5 MHz | Frequency<br>1752.5 MHz |     |
| 5 MHz      | QPSK       | 1       | 0         | 21.44                   | 21.51                   | 21.55                   | 0   |
|            |            | 1       | 12        | 21.75                   | 21.82                   | 21.86                   | 0   |
|            |            | 1       | 24        | 21.34                   | 21.41                   | 21.45                   | 0   |
|            |            | 12      | 0         | 20.81                   | 20.88                   | 20.92                   | 1   |
|            |            | 12      | 6         | 20.75                   | 20.82                   | 20.86                   | 1   |
|            |            | 12      | 13        | 20.69                   | 20.76                   | 20.80                   | 1   |
|            |            | 25      | 0         | 20.73                   | 20.80                   | 20.84                   | 1   |
|            | 16QAM      | 1       | 0         | 20.67                   | 20.74                   | 20.78                   | 1   |
|            |            | 1       | 12        | 20.96                   | 21.03                   | 21.07                   | 1   |
|            |            | 1       | 24        | 20.62                   | 20.69                   | 20.73                   | 1   |
|            |            | 12      | 0         | 19.75                   | 19.82                   | 19.86                   | 2   |
|            |            | 12      | 6         | 19.71                   | 19.78                   | 19.82                   | 2   |
|            |            | 12      | 13        | 19.64                   | 19.71                   | 19.75                   | 2   |
|            |            | 25      | 0         | 19.70                   | 19.77                   | 19.81                   | 2   |
| BW         | Modulation | RB Size | RB Offset | Low CH<br>20000         | Mid CH<br>20175         | High CH<br>20350        | MPR |
|            |            |         |           | Frequency<br>1715 MHz   | Frequency<br>1732.5 MHz | Frequency<br>1750 MHz   |     |
| 10 MHz     | QPSK       | 1       | 0         | 21.48                   | 21.55                   | 21.59                   | 0   |
|            |            | 1       | 24        | 21.79                   | 21.86                   | 21.90                   | 0   |
|            |            | 1       | 49        | 21.38                   | 21.45                   | 21.49                   | 0   |
|            |            | 25      | 0         | 20.85                   | 20.92                   | 20.96                   | 1   |
|            |            | 25      | 12        | 20.79                   | 20.86                   | 20.90                   | 1   |
|            |            | 25      | 25        | 20.73                   | 20.80                   | 20.84                   | 1   |
|            |            | 50      | 0         | 20.77                   | 20.84                   | 20.88                   | 1   |
|            | 16QAM      | 1       | 0         | 20.71                   | 20.78                   | 20.82                   | 1   |
|            |            | 1       | 24        | 21.00                   | 21.07                   | 21.11                   | 1   |
|            |            | 1       | 49        | 20.66                   | 20.73                   | 20.77                   | 1   |
|            |            | 25      | 0         | 19.79                   | 19.86                   | 19.90                   | 2   |
|            |            | 25      | 12        | 19.75                   | 19.82                   | 19.86                   | 2   |
|            |            | 25      | 25        | 19.68                   | 19.75                   | 19.79                   | 2   |
|            |            | 50      | 0         | 19.74                   | 19.81                   | 19.85                   | 2   |

| LTE Band 4 |            |         |           |                         |                         |                         |     |
|------------|------------|---------|-----------|-------------------------|-------------------------|-------------------------|-----|
| BW         | Modulation | RB Size | RB Offset | Low CH<br>20025         | Mid CH<br>20175         | High CH<br>20325        | MPR |
|            |            |         |           | Frequency<br>1717.5 MHz | Frequency<br>1732.5 MHz | Frequency<br>1747.5 MHz |     |
| 15 MHz     | QPSK       | 1       | 0         | 21.54                   | 21.61                   | 21.65                   | 0   |
|            |            | 1       | 37        | 21.85                   | 21.92                   | 21.96                   | 0   |
|            |            | 1       | 74        | 21.44                   | 21.51                   | 21.55                   | 0   |
|            |            | 36      | 0         | 20.91                   | 20.98                   | 21.02                   | 1   |
|            |            | 36      | 19        | 20.85                   | 20.92                   | 20.96                   | 1   |
|            |            | 36      | 39        | 20.79                   | 20.86                   | 20.90                   | 1   |
|            |            | 75      | 0         | 20.83                   | 20.90                   | 20.94                   | 1   |
|            | 16QAM      | 1       | 0         | 20.77                   | 20.84                   | 20.88                   | 1   |
|            |            | 1       | 37        | 21.06                   | 21.13                   | 21.17                   | 1   |
|            |            | 1       | 74        | 20.72                   | 20.79                   | 20.83                   | 1   |
|            |            | 36      | 0         | 19.85                   | 19.92                   | 19.96                   | 2   |
|            |            | 36      | 19        | 19.81                   | 19.88                   | 19.92                   | 2   |
|            |            | 36      | 39        | 19.74                   | 19.81                   | 19.85                   | 2   |
|            |            | 75      | 0         | 19.80                   | 19.87                   | 19.91                   | 2   |
| BW         | Modulation | RB Size | RB Offset | Low CH<br>20050         | Mid CH<br>20175         | High CH<br>20300        | MPR |
|            |            |         |           | Frequency<br>1720 MHz   | Frequency<br>1732.5 MHz | Frequency<br>1745 MHz   |     |
| 20MHz      | QPSK       | 1       | 0         | 21.57                   | 21.64                   | 21.68                   | 0   |
|            |            | 1       | 50        | 21.88                   | 21.95                   | 21.99                   | 0   |
|            |            | 1       | 99        | 21.47                   | 21.54                   | 21.58                   | 0   |
|            |            | 50      | 0         | 20.94                   | 21.01                   | 21.05                   | 1   |
|            |            | 50      | 25        | 20.88                   | 20.95                   | 20.99                   | 1   |
|            |            | 50      | 50        | 20.82                   | 20.89                   | 20.93                   | 1   |
|            |            | 100     | 0         | 20.86                   | 20.93                   | 20.97                   | 1   |
|            | 16QAM      | 1       | 0         | 20.80                   | 20.87                   | 20.91                   | 1   |
|            |            | 1       | 50        | 21.09                   | 21.16                   | 21.20                   | 1   |
|            |            | 1       | 99        | 20.75                   | 20.82                   | 20.86                   | 1   |
|            |            | 50      | 0         | 19.88                   | 19.95                   | 19.99                   | 2   |
|            |            | 50      | 25        | 19.84                   | 19.91                   | 19.95                   | 2   |
|            |            | 50      | 50        | 19.77                   | 19.84                   | 19.88                   | 2   |
|            |            | 100     | 0         | 19.83                   | 19.90                   | 19.94                   | 2   |

**EIRP**

**WCDMA IV**

| Channel | Frequency (MHz) | SPA LVL (dBm) | Correction Factor(dB) | EIRP(dBm) | EIRP(mW)       | Polarization (H/V) |
|---------|-----------------|---------------|-----------------------|-----------|----------------|--------------------|
| 1312    | 1712.40         | -18.89        | 41.39                 | 22.50     | <b>1119.18</b> | H                  |
| 1413    | 1732.60         | -18.12        | 41.36                 | 23.24     | 1095.97        | H                  |
| 1513    | 1752.60         | -18.42        | 42.63                 | 24.21     | 1110.18        | H                  |
| 1312    | 1712.4          | -26.36        | 44.17                 | 17.81     | 60.38          | V                  |
| 1413    | 1732.6          | -26.78        | 44.20                 | 17.42     | 55.21          | V                  |
| 1513    | 1752.6          | -26.21        | 44.35                 | 18.14     | 65.09          | V                  |

**REMARKS:** 1. EIRP Output Power (dBm) = SPA LVL (dBm) + Correction Factor (dB).  
2. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss

**LTE BAND 4**

**CHANNEL BANDWIDTH: 1.4MHz QPSK**

| Channel | Frequency (MHz) | SPA LVL (dBm) | Correction Factor(dB) | EIRP(dBm) | EIRP(mW)      | Polarization (H/V) | LIMIT (W) |
|---------|-----------------|---------------|-----------------------|-----------|---------------|--------------------|-----------|
| 19957   | 1710.7          | -16.98        | 41.29                 | 24.31     | 270.02        | H                  | 1         |
| 20175   | 1732.5          | -17.42        | 41.36                 | 23.94     | 247.74        | H                  | 1         |
| 20393   | 1754.3          | -17.73        | 42.74                 | 25.01     | <b>316.81</b> | H                  | 1         |
| 19957   | 1710.7          | -26.18        | 44.25                 | 18.07     | 64.05         | V                  | 1         |
| 20175   | 1732.5          | -25.68        | 44.20                 | 18.52     | 71.12         | V                  | 1         |
| 20393   | 1754.3          | -26.79        | 44.09                 | 17.30     | 53.64         | V                  | 1         |

**CHANNEL BANDWIDTH: 1.4MHz 16QAM**

| Channel | Frequency (MHz) | SPA LVL (dBm) | Correction Factor(dB) | EIRP(dBm) | EIRP(mW) | Polarization (H/V) | LIMIT (W) |
|---------|-----------------|---------------|-----------------------|-----------|----------|--------------------|-----------|
| 19957   | 1710.7          | -17.85        | 41.29                 | 23.44     | 221.00   | H                  | 1         |
| 20175   | 1732.5          | -18.35        | 41.36                 | 23.01     | 199.99   | H                  | 1         |
| 20393   | 1754.3          | -18.69        | 42.74                 | 24.05     | 253.98   | H                  | 1         |
| 19957   | 1710.7          | -27.05        | 44.25                 | 17.20     | 52.42    | V                  | 1         |
| 20175   | 1732.5          | -26.61        | 44.20                 | 17.59     | 57.41    | V                  | 1         |
| 20393   | 1754.3          | -27.75        | 44.09                 | 16.34     | 43.00    | V                  | 1         |

#### LTE BAND 4

##### CHANNEL BANDWIDTH: 3MHz QPSK

| Channel | Frequency (MHz) | SPA LVL (dBm) | Correction Factor(dB) | EIRP(dBm) | EIRP(mW)      | Polarization (H/V) | LIMIT (W) |
|---------|-----------------|---------------|-----------------------|-----------|---------------|--------------------|-----------|
| 19965   | 1711.5          | -16.96        | 41.27                 | 24.31     | 269.59        | H                  | 1         |
| 20175   | 1732.5          | -17.48        | 41.36                 | 23.88     | 244.34        | H                  | 1         |
| 20385   | 1753.5          | -17.68        | 42.76                 | 25.08     | <b>321.88</b> | H                  | 1         |
| 19965   | 1711.5          | -26.16        | 44.26                 | 18.10     | 64.60         | V                  | 1         |
| 20175   | 1732.5          | -25.74        | 44.20                 | 18.46     | 70.15         | V                  | 1         |
| 20385   | 1753.5          | -26.74        | 44.23                 | 17.49     | 56.13         | V                  | 1         |

##### CHANNEL BANDWIDTH: 3MHz 16QAM

| Channel | Frequency (MHz) | SPA LVL (dBm) | Correction Factor(dB) | EIRP(dBm) | EIRP(mW) | Polarization (H/V) | LIMIT (W) |
|---------|-----------------|---------------|-----------------------|-----------|----------|--------------------|-----------|
| 19965   | 1711.5          | -18.03        | 41.27                 | 23.24     | 210.72   | H                  | 1         |
| 20175   | 1732.5          | -18.37        | 41.36                 | 22.99     | 199.07   | H                  | 1         |
| 20385   | 1753.5          | -18.67        | 42.76                 | 24.09     | 256.27   | H                  | 1         |
| 19965   | 1711.5          | -27.23        | 44.26                 | 17.03     | 50.49    | V                  | 1         |
| 20175   | 1732.5          | -26.63        | 44.20                 | 17.57     | 57.15    | V                  | 1         |
| 20385   | 1753.5          | -27.73        | 44.23                 | 16.50     | 44.69    | V                  | 1         |

#### LTE BAND 4

##### CHANNEL BANDWIDTH: 5MHz QPSK

| Channel | Frequency (MHz) | SPA LVL (dBm) | Correction Factor(dB) | EIRP(dBm) | EIRP(mW)      | Polarization (H/V) | LIMIT (W) |
|---------|-----------------|---------------|-----------------------|-----------|---------------|--------------------|-----------|
| 19975   | 1712.5          | -17.02        | 41.39                 | 24.37     | 273.46        | H                  | 1         |
| 20175   | 1732.5          | -17.43        | 41.36                 | 23.93     | 247.17        | H                  | 1         |
| 20375   | 1752.5          | -17.63        | 42.63                 | 25.00     | <b>316.15</b> | H                  | 1         |
| 19975   | 1712.5          | -26.22        | 44.17                 | 17.95     | 62.32         | V                  | 1         |
| 20175   | 1732.5          | -25.69        | 44.20                 | 18.51     | 70.96         | V                  | 1         |
| 20375   | 1752.5          | -26.69        | 44.35                 | 17.66     | 58.28         | V                  | 1         |

**CHANNEL BANDWIDTH: 5MHz 16QAM**

| Channel | Frequency (MHz) | SPA LVL (dBm) | Correction Factor(dB) | EIRP(dBm) | EIRP(mW) | Polarization (H/V) | LIMIT (W) |
|---------|-----------------|---------------|-----------------------|-----------|----------|--------------------|-----------|
| 19975   | 1712.5          | -17.85        | 41.39                 | 23.54     | 225.89   | H                  | 1         |
| 20175   | 1732.5          | -18.45        | 41.36                 | 22.91     | 195.43   | H                  | 1         |
| 20375   | 1752.5          | -18.73        | 42.63                 | 23.90     | 245.41   | H                  | 1         |
| 19975   | 1712.5          | -27.05        | 44.17                 | 17.12     | 51.48    | V                  | 1         |
| 20175   | 1732.5          | -26.71        | 44.20                 | 17.49     | 56.10    | V                  | 1         |
| 20375   | 1752.5          | -27.79        | 44.35                 | 16.56     | 45.24    | V                  | 1         |

**LTE BAND 4**

**CHANNEL BANDWIDTH: 10MHz QPSK**

| Channel | Frequency (MHz) | SPA LVL (dBm) | Correction Factor(dB) | EIRP(dBm) | EIRP(mW)      | Polarization (H/V) | LIMIT (W) |
|---------|-----------------|---------------|-----------------------|-----------|---------------|--------------------|-----------|
| 20000   | 1715.0          | -16.83        | 41.49                 | 24.66     | 292.15        | H                  | 1         |
| 20175   | 1732.5          | -17.37        | 41.36                 | 23.99     | 250.61        | H                  | 1         |
| 20350   | 1750.0          | -17.50        | 42.28                 | 24.78     | <b>300.82</b> | H                  | 1         |
| 20000   | 1715.0          | -26.03        | 44.06                 | 18.03     | 63.58         | V                  | 1         |
| 20175   | 1732.5          | -25.63        | 44.20                 | 18.57     | 71.94         | V                  | 1         |
| 20350   | 1750.0          | -26.56        | 44.43                 | 17.87     | 61.24         | V                  | 1         |

**CHANNEL BANDWIDTH: 10MHz 16QAM**

| Channel | Frequency (MHz) | SPA LVL (dBm) | Correction Factor(dB) | EIRP(dBm) | EIRP(mW) | Polarization (H/V) | LIMIT (W) |
|---------|-----------------|---------------|-----------------------|-----------|----------|--------------------|-----------|
| 20000   | 1715.0          | -17.98        | 41.49                 | 23.51     | 224.18   | H                  | 1         |
| 20175   | 1732.5          | -18.47        | 41.36                 | 22.89     | 194.54   | H                  | 1         |
| 20350   | 1750.0          | -18.66        | 42.28                 | 23.62     | 230.30   | H                  | 1         |
| 20000   | 1715.0          | -27.18        | 44.06                 | 16.88     | 48.79    | V                  | 1         |
| 20175   | 1732.5          | -26.73        | 44.20                 | 17.47     | 55.85    | V                  | 1         |
| 20350   | 1750.0          | -27.72        | 44.43                 | 16.71     | 46.88    | V                  | 1         |

#### LTE BAND 4

##### CHANNEL BANDWIDTH: 15MHz QPSK

| Channel | Frequency (MHz) | SPA LVL (dBm) | Correction Factor(dB) | EIRP(dBm) | EIRP(mW)      | Polarization (H/V) | LIMIT (W) |
|---------|-----------------|---------------|-----------------------|-----------|---------------|--------------------|-----------|
| 20025   | 1717.5          | -16.84        | 41.34                 | 24.50     | 281.71        | H                  | 1         |
| 20175   | 1732.5          | -17.44        | 41.36                 | 23.92     | 246.60        | H                  | 1         |
| 20325   | 1747.5          | -17.57        | 42.09                 | 24.52     | <b>282.88</b> | H                  | 1         |
| 20025   | 1717.5          | -26.04        | 44.04                 | 18.00     | 63.15         | V                  | 1         |
| 20175   | 1732.5          | -25.70        | 44.20                 | 18.50     | 70.79         | V                  | 1         |
| 20325   | 1747.5          | -26.63        | 44.22                 | 17.59     | 57.35         | V                  | 1         |

##### CHANNEL BANDWIDTH: 15MHz 16QAM

| Channel | Frequency (MHz) | SPA LVL (dBm) | Correction Factor(dB) | EIRP(dBm) | EIRP(mW) | Polarization (H/V) | LIMIT (W) |
|---------|-----------------|---------------|-----------------------|-----------|----------|--------------------|-----------|
| 20025   | 1717.5          | -17.70        | 41.34                 | 23.64     | 231.10   | H                  | 1         |
| 20175   | 1732.5          | -18.31        | 41.36                 | 23.05     | 201.84   | H                  | 1         |
| 20325   | 1747.5          | -18.42        | 42.09                 | 23.67     | 232.59   | H                  | 1         |
| 20025   | 1717.5          | -26.90        | 44.04                 | 17.14     | 51.81    | V                  | 1         |
| 20175   | 1732.5          | -26.57        | 44.20                 | 17.63     | 57.94    | V                  | 1         |
| 20325   | 1747.5          | -27.48        | 44.22                 | 16.74     | 47.15    | V                  | 1         |

#### LTE BAND 4

##### CHANNEL BANDWIDTH: 20MHz QPSK

| Channel | Frequency (MHz) | SPA LVL (dBm) | Correction Factor(dB) | EIRP(dBm) | EIRP(mW)      | Polarization (H/V) | LIMIT (W) |
|---------|-----------------|---------------|-----------------------|-----------|---------------|--------------------|-----------|
| 20050   | 1720.0          | -17.42        | 41.28                 | 23.86     | <b>243.28</b> | H                  | 1         |
| 20175   | 1732.5          | -17.89        | 41.36                 | 23.47     | 222.38        | H                  | 1         |
| 20300   | 1745.0          | -18.15        | 41.96                 | 23.81     | 240.27        | H                  | 1         |
| 20050   | 1720.0          | -26.62        | 44.14                 | 17.52     | 56.43         | V                  | 1         |
| 20175   | 1732.5          | -26.15        | 44.20                 | 18.05     | 63.77         | V                  | 1         |
| 20300   | 1745.0          | -27.21        | 43.88                 | 16.67     | 46.47         | V                  | 1         |



Test Report No.: RF180227W007-5

CHANNEL BANDWIDTH: 20MHz 16QAM

| Channel | Frequency (MHz) | SPA LVL (dBm) | Correction Factor(dB) | EIRP(dBm) | EIRP(mW) | Polarization (H/V) | LIMIT (W) |
|---------|-----------------|---------------|-----------------------|-----------|----------|--------------------|-----------|
| 20050   | 1720.0          | -18.35        | 41.28                 | 22.93     | 196.38   | H                  | 1         |
| 20175   | 1732.5          | -18.96        | 41.36                 | 22.40     | 173.82   | H                  | 1         |
| 20300   | 1745.0          | -18.98        | 41.96                 | 22.98     | 198.47   | H                  | 1         |
| 20050   | 1720.0          | -27.55        | 44.14                 | 16.59     | 45.55    | V                  | 1         |
| 20175   | 1732.5          | -27.22        | 44.20                 | 16.98     | 49.84    | V                  | 1         |
| 20300   | 1745.0          | -28.04        | 43.88                 | 15.84     | 38.39    | V                  | 1         |

**REMARKS:** 1. EIRP Output Power (dBm) = SPA LVL (dBm) + Correction Factor (dB).  
2. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss

## 3.2 FREQUENCY STABILITY MEASUREMENT

### 3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

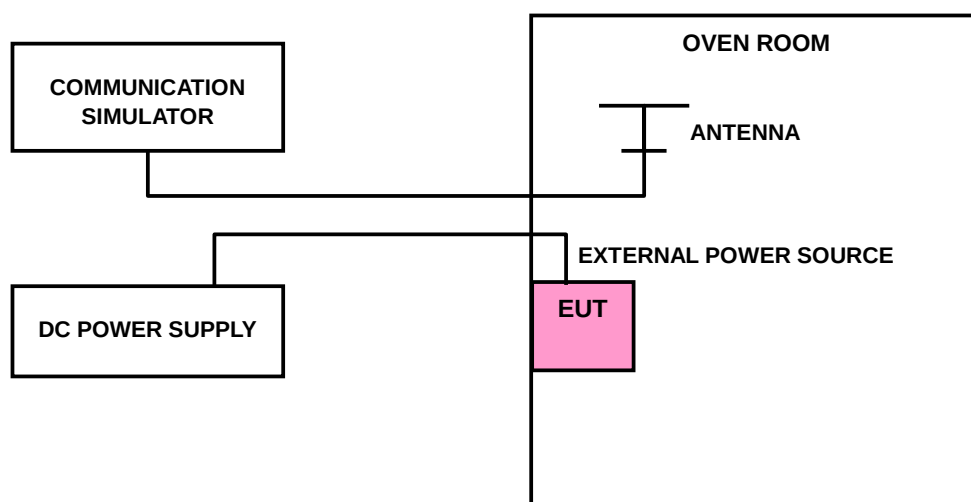
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

### 3.2.2 TEST PROCEDURE

- 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.
- 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.
- 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



### 3.2.4 TEST RESULTS

#### WCDMA BAND IV

##### FREQUENCY ERROR VS. VOLTAGE

| VOLTAGE (Volts) | FREQUENCY ERROR (ppm) |              | LIMIT (ppm) |
|-----------------|-----------------------|--------------|-------------|
|                 | Low Channel           | High Channel |             |
| 3.8             | 0.0018                | 0.0017       | 2.5         |
| 3.5             | -0.0016               | -0.0021      | 2.5         |
| 4.2             | -0.0019               | 0.0018       | 2.5         |

**NOTE:** The applicant defined the normal working voltage of the battery is from 3.5Vdc to 4.2Vdc.

##### FREQUENCY ERROR vs. TEMPERATURE.

| TEMP. (°C) | FREQUENCY ERROR (ppm) |              | LIMIT (ppm) |
|------------|-----------------------|--------------|-------------|
|            | Low Channel           | High Channel |             |
| -30        | -0.0126               | -0.0121      | 2.5         |
| -20        | -0.0113               | -0.0108      | 2.5         |
| -10        | -0.0105               | -0.0100      | 2.5         |
| 0          | -0.0089               | -0.0085      | 2.5         |
| 10         | -0.0066               | -0.0063      | 2.5         |
| 20         | -0.0052               | -0.0050      | 2.5         |
| 30         | -0.0042               | -0.0040      | 2.5         |
| 40         | -0.0034               | -0.0032      | 2.5         |
| 50         | -0.0020               | -0.0019      | 2.5         |

## LTE BAND 4

### FREQUENCY ERROR VS. VOLTAGE

| VOLTAGE (Volts) | 1.4MHz                |              | LIMIT (ppm) |
|-----------------|-----------------------|--------------|-------------|
|                 | FREQUENCY ERROR (ppm) |              |             |
|                 | Low Channel           | High Channel |             |
| 3.8             | 0.0008                | 0.0010       | 2.5         |
| 3.5             | -0.0013               | -0.0014      | 2.5         |
| 4.2             | 0.0008                | 0.0009       | 2.5         |

**NOTE:** The applicant defined the normal working voltage of the battery is from 3.5Vdc to 4.2Vdc.

### FREQUENCY ERROR vs. TEMPERATURE.

| TEMP. (°C) | 1.4MHz                |              | LIMIT (ppm) |
|------------|-----------------------|--------------|-------------|
|            | FREQUENCY ERROR (ppm) |              |             |
|            | Low Channel           | High Channel |             |
| -30        | -0.0062               | -0.0054      | 2.5         |
| -20        | -0.0054               | -0.0049      | 2.5         |
| -10        | -0.0048               | -0.0042      | 2.5         |
| 0          | -0.0020               | -0.0035      | 2.5         |
| 10         | -0.0034               | -0.0033      | 2.5         |
| 20         | -0.0025               | -0.0024      | 2.5         |
| 30         | -0.0015               | -0.0015      | 2.5         |
| 40         | -0.0009               | -0.0010      | 2.5         |
| 50         | -0.0003               | -0.0002      | 2.5         |

#### FREQUENCY ERROR VS. VOLTAGE

| VOLTAGE (Volts) | 3MHz                  |              | LIMIT (ppm) |
|-----------------|-----------------------|--------------|-------------|
|                 | FREQUENCY ERROR (ppm) |              |             |
|                 | Low Channel           | High Channel |             |
| 3.8             | 0.0008                | 0.0009       | 2.5         |
| 3.5             | -0.0009               | -0.0010      | 2.5         |
| 4.2             | 0.0008                | 0.0009       | 2.5         |

**NOTE:** The applicant defined the normal working voltage of the battery is from 3.5Vdc to 4.2Vdc.

#### FREQUENCY ERROR vs. TEMPERATURE.

| TEMP. (°C) | 3MHz                  |              | LIMIT (ppm) |
|------------|-----------------------|--------------|-------------|
|            | FREQUENCY ERROR (ppm) |              |             |
|            | Low Channel           | High Channel |             |
| -30        | -0.0060               | -0.0054      | 2.5         |
| -20        | -0.0056               | -0.0050      | 2.5         |
| -10        | -0.0044               | -0.0041      | 2.5         |
| 0          | -0.0037               | -0.0038      | 2.5         |
| 10         | -0.0029               | -0.0026      | 2.5         |
| 20         | -0.0022               | -0.0022      | 2.5         |
| 30         | -0.0018               | -0.0018      | 2.5         |
| 40         | -0.0011               | -0.0010      | 2.5         |
| 50         | -0.0003               | -0.0003      | 2.5         |

#### FREQUENCY ERROR VS. VOLTAGE

| VOLTAGE (Volts) | 5MHz                  |              | LIMIT (ppm) |
|-----------------|-----------------------|--------------|-------------|
|                 | FREQUENCY ERROR (ppm) |              |             |
|                 | Low Channel           | High Channel |             |
| 3.8             | 0.0009                | 0.0010       | 2.5         |
| 3.5             | -0.0007               | -0.0012      | 2.5         |
| 4.2             | 0.0010                | 0.0009       | 2.5         |

**NOTE:** The applicant defined the normal working voltage of the battery is from 3.5Vdc to 4.2Vdc.

#### FREQUENCY ERROR vs. TEMPERATURE.

| TEMP. (°C) | 5MHz                  |              | LIMIT (ppm) |
|------------|-----------------------|--------------|-------------|
|            | FREQUENCY ERROR (ppm) |              |             |
|            | Low Channel           | High Channel |             |
| -30        | -0.0056               | -0.0052      | 2.5         |
| -20        | -0.0049               | -0.0047      | 2.5         |
| -10        | -0.0043               | -0.0041      | 2.5         |
| 0          | -0.0037               | -0.0034      | 2.5         |
| 10         | -0.0028               | -0.0025      | 2.5         |
| 20         | -0.0019               | -0.0018      | 2.5         |
| 30         | -0.0015               | -0.0014      | 2.5         |
| 40         | -0.0007               | -0.0007      | 2.5         |
| 50         | -0.0002               | -0.0002      | 2.5         |

#### FREQUENCY ERROR VS. VOLTAGE

| VOLTAGE (Volts) | 10MHz                 |              | LIMIT (ppm) |
|-----------------|-----------------------|--------------|-------------|
|                 | FREQUENCY ERROR (ppm) |              |             |
|                 | Low Channel           | High Channel |             |
| 3.8             | 0.0008                | 0.0012       | 2.5         |
| 3.5             | -0.0012               | -0.0012      | 2.5         |
| 4.2             | 0.0009                | 0.0009       | 2.5         |

**NOTE:** The applicant defined the normal working voltage of the battery is from 3.5Vdc to 4.2Vdc.

#### FREQUENCY ERROR vs. TEMPERATURE.

| TEMP. (°C) | 10MHz                 |              | LIMIT (ppm) |
|------------|-----------------------|--------------|-------------|
|            | FREQUENCY ERROR (ppm) |              |             |
|            | Low Channel           | High Channel |             |
| -30        | -0.0055               | -0.0053      | 2.5         |
| -20        | -0.0049               | -0.0049      | 2.5         |
| -10        | -0.0043               | -0.0041      | 2.5         |
| 0          | -0.0032               | -0.0030      | 2.5         |
| 10         | -0.0026               | -0.0024      | 2.5         |
| 20         | -0.0020               | -0.0019      | 2.5         |
| 30         | -0.0015               | -0.0012      | 2.5         |
| 40         | -0.0008               | -0.0007      | 2.5         |
| 50         | -0.0002               | -0.0001      | 2.5         |

#### FREQUENCY ERROR VS. VOLTAGE

| VOLTAGE (Volts) | 15MHz                 |              | LIMIT (ppm) |
|-----------------|-----------------------|--------------|-------------|
|                 | FREQUENCY ERROR (ppm) |              |             |
|                 | Low Channel           | High Channel |             |
| 3.8             | 0.0010                | 0.0009       | 2.5         |
| 3.5             | -0.0013               | -0.0012      | 2.5         |
| 4.2             | 0.0009                | 0.0010       | 2.5         |

**NOTE:** The applicant defined the normal working voltage of the battery is from 3.5Vdc to 4.2Vdc.

#### FREQUENCY ERROR vs. TEMPERATURE.

| TEMP. (°C) | 15MHz                 |              | LIMIT (ppm) |
|------------|-----------------------|--------------|-------------|
|            | FREQUENCY ERROR (ppm) |              |             |
|            | Low Channel           | High Channel |             |
| -30        | -0.0056               | -0.0054      | 2.5         |
| -20        | -0.0048               | -0.0045      | 2.5         |
| -10        | -0.0042               | -0.0038      | 2.5         |
| 0          | -0.0032               | -0.0031      | 2.5         |
| 10         | -0.0025               | -0.0026      | 2.5         |
| 20         | -0.0020               | -0.0021      | 2.5         |
| 30         | -0.0013               | -0.0012      | 2.5         |
| 40         | -0.0009               | -0.0008      | 2.5         |
| 50         | -0.0002               | -0.0003      | 2.5         |

#### FREQUENCY ERROR VS. VOLTAGE

| VOLTAGE (Volts) | 20MHz                 |              | LIMIT (ppm) |
|-----------------|-----------------------|--------------|-------------|
|                 | FREQUENCY ERROR (ppm) |              |             |
|                 | Low Channel           | High Channel |             |
| 3.8             | 0.0011                | 0.0012       | 2.5         |
| 3.5             | -0.0012               | -0.0013      | 2.5         |
| 4.2             | 0.0008                | 0.0011       | 2.5         |

**NOTE:** The applicant defined the normal working voltage of the battery is from 3.5Vdc to 4.2Vdc.

#### FREQUENCY ERROR vs. TEMPERATURE.

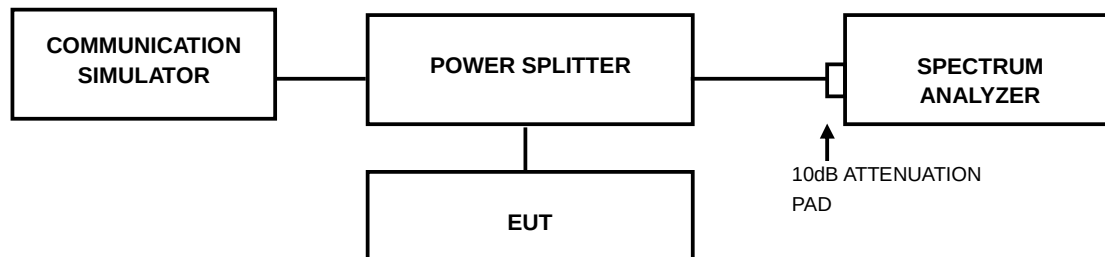
| TEMP. (°C) | 20MHz                 |              | LIMIT (ppm) |
|------------|-----------------------|--------------|-------------|
|            | FREQUENCY ERROR (ppm) |              |             |
|            | Low Channel           | High Channel |             |
| -30        | -0.0052               | -0.0049      | 2.5         |
| -20        | -0.0043               | -0.0042      | 2.5         |
| -10        | -0.0039               | -0.0037      | 2.5         |
| 0          | -0.0031               | -0.0028      | 2.5         |
| 10         | -0.0025               | -0.0021      | 2.5         |
| 20         | -0.0021               | -0.0019      | 2.5         |
| 30         | -0.0011               | -0.0011      | 2.5         |
| 40         | -0.0003               | -0.0005      | 2.5         |
| 50         | 0.0002                | -0.0001      | 2.5         |

### 3.3 OCCUPIED BANDWIDTH MEASUREMENT

#### 3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

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

#### 3.3.2 TEST SETUP



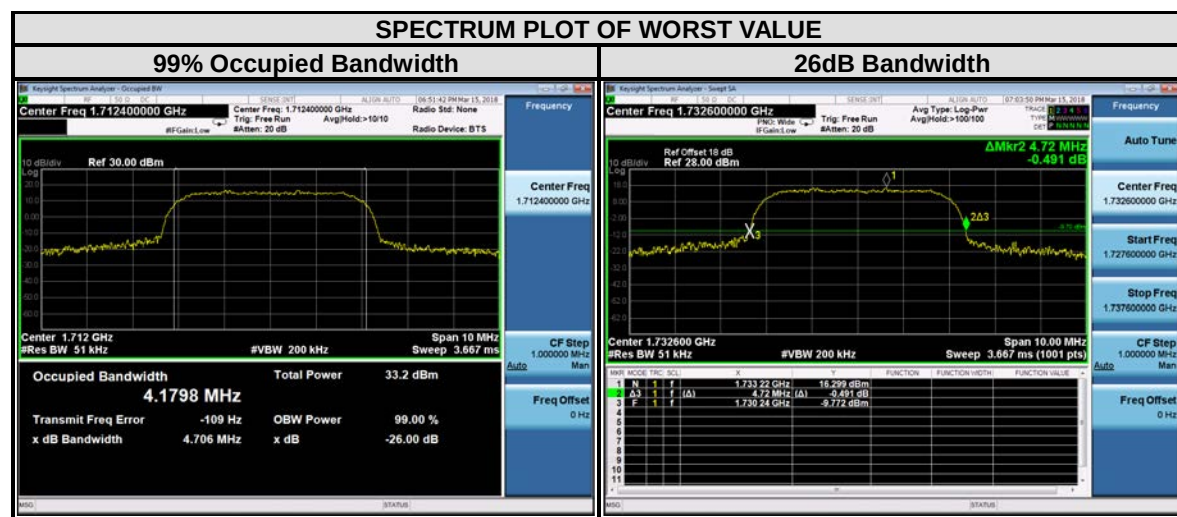
#### 3.3.3 TEST PROCEDURES

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

### 3.3.4 TEST RESULTS

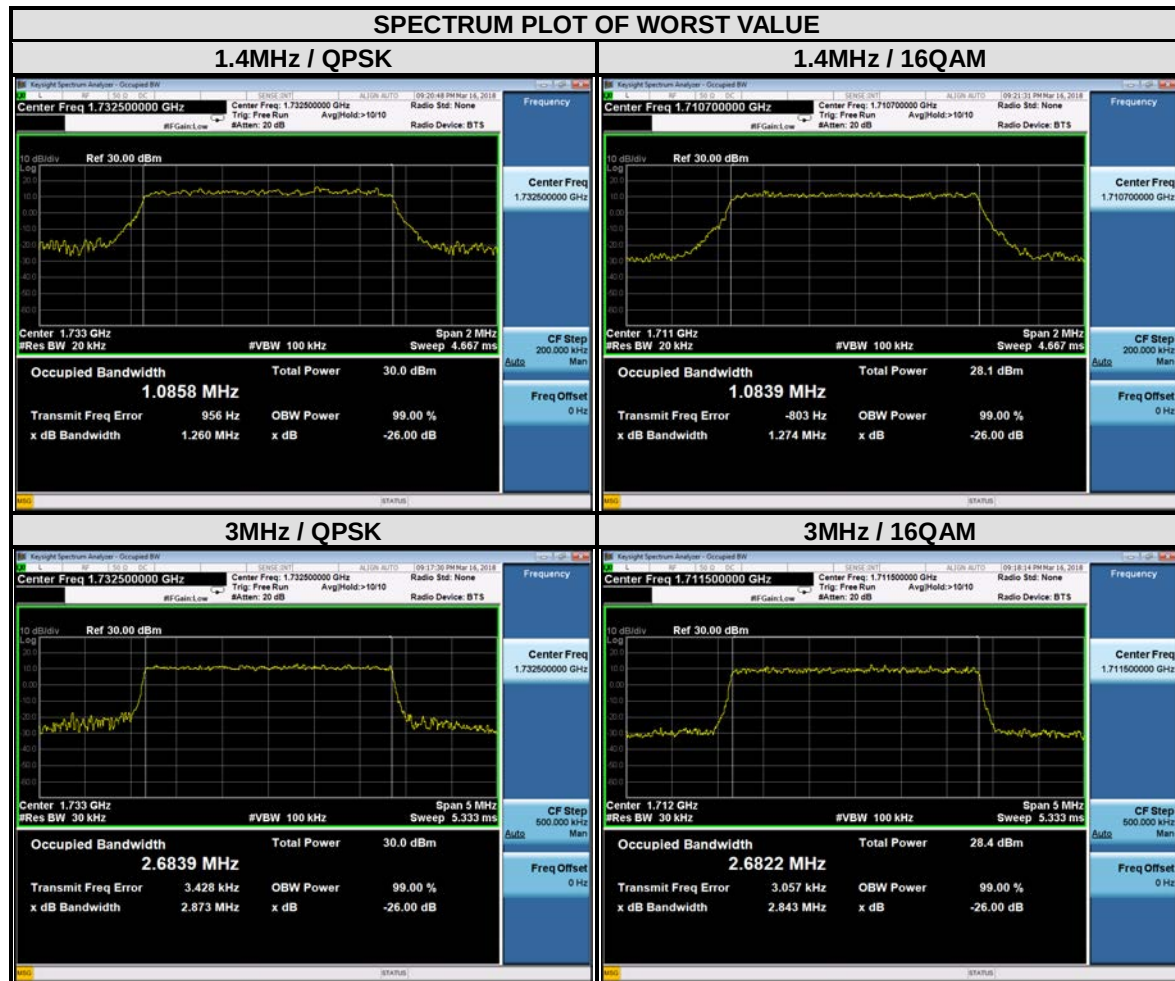
#### WCDMA BAND IV

| Channel | FREQ. (MHz) | 99% Occupied Bandwidth (MHz) | Channel | FREQ. (MHz) | 26dB Bandwidth (MHz) |
|---------|-------------|------------------------------|---------|-------------|----------------------|
|         |             | WCDMA                        |         |             | WCDMA                |
| 1312    | 1712.40     | 4.18                         | 1312    | 1712.40     | 4.70                 |
| 1413    | 1732.60     | 4.17                         | 1413    | 1732.60     | 4.72                 |
| 1513    | 1752.60     | 4.17                         | 1513    | 1752.60     | 4.72                 |



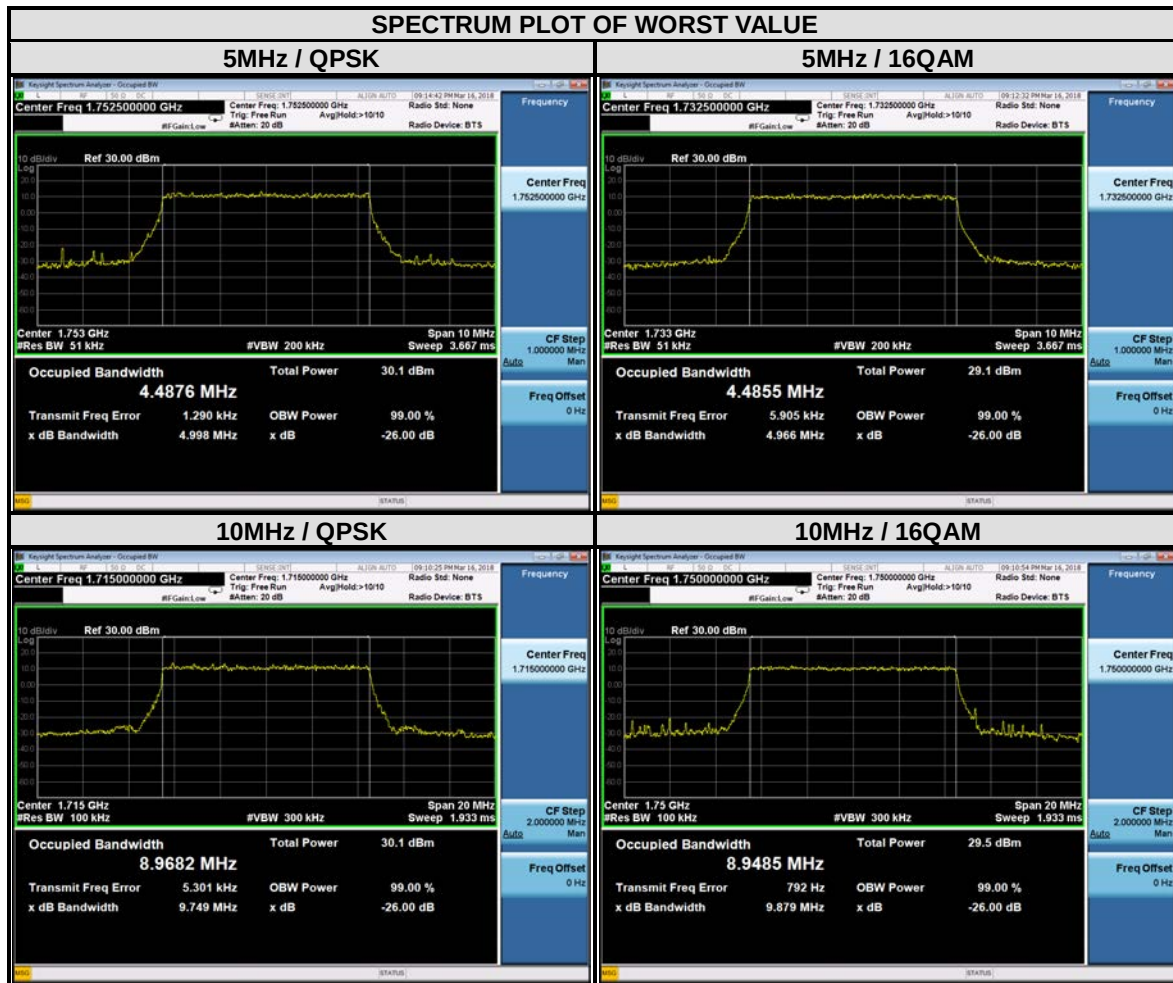
#### LTE BAND 4

| CHANNEL BANDWIDTH: 1.4MHz |                 |                              |       | CHANNEL BANDWIDTH: 3MHz |                 |                              |       |
|---------------------------|-----------------|------------------------------|-------|-------------------------|-----------------|------------------------------|-------|
| CHANNEL                   | Frequency (MHz) | 99% OCCUPIED Bandwidth (MHz) |       | CHANNEL                 | Frequency (MHz) | 99% OCCUPIED Bandwidth (MHz) |       |
|                           |                 | QPSK                         | 16QAM |                         |                 | QPSK                         | 16QAM |
| 19957                     | 1710.7          | 1.09                         | 1.08  | 19965                   | 1711.5          | 2.68                         | 2.68  |
| 20175                     | 1732.5          | 1.09                         | 1.08  | 20175                   | 1732.5          | 2.68                         | 2.67  |
| 20393                     | 1754.3          | 1.09                         | 1.08  | 20385                   | 1753.5          | 2.68                         | 2.68  |



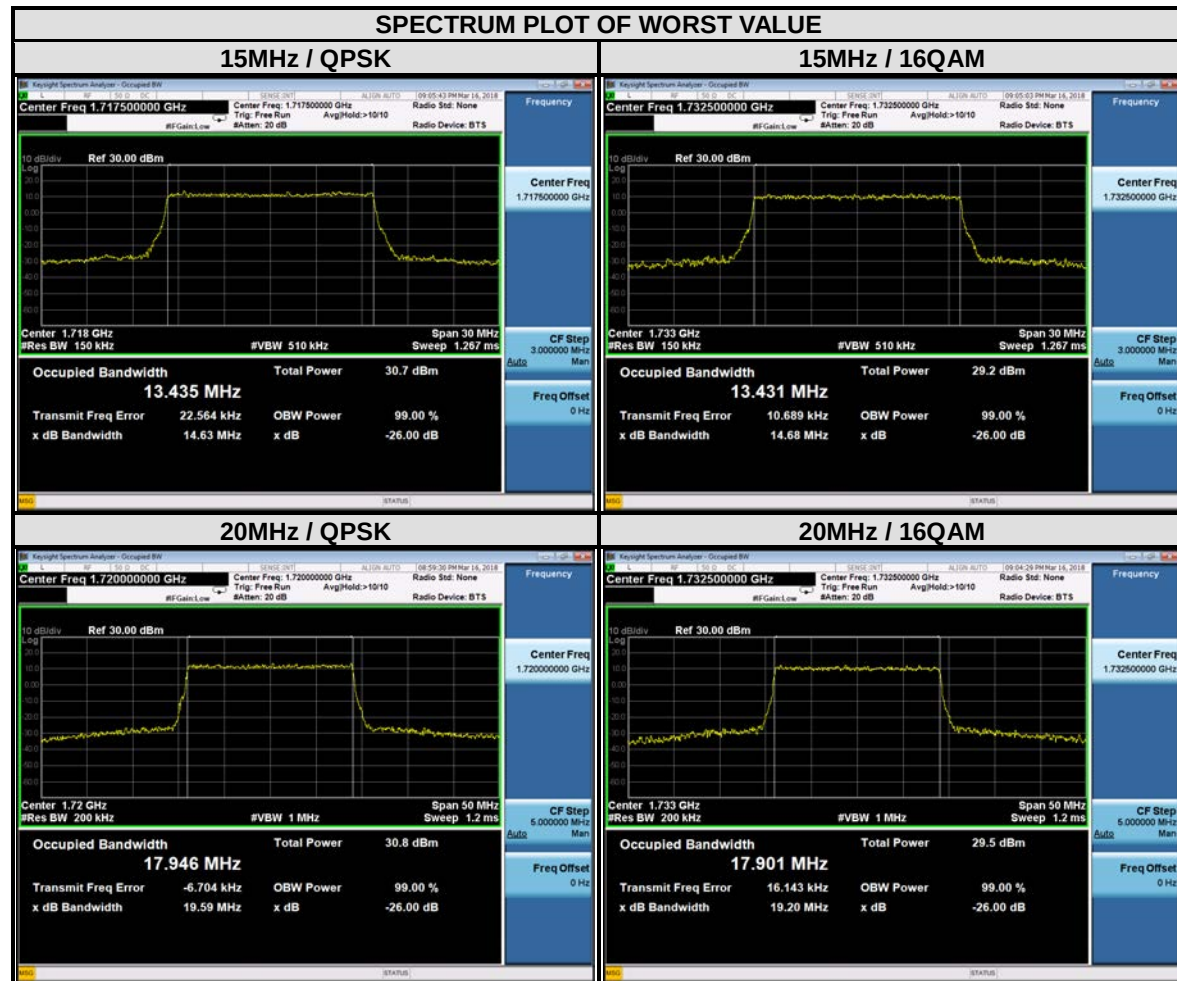
**LTE BAND 4**

| CHANNEL BANDWIDTH: 5MHz |                 |                              |       | CHANNEL BANDWIDTH: 10MHz |                 |                              |       |
|-------------------------|-----------------|------------------------------|-------|--------------------------|-----------------|------------------------------|-------|
| CHANNEL                 | Frequency (MHz) | 99% OCCUPIED Bandwidth (MHz) |       | CHANNEL                  | Frequency (MHz) | 99% OCCUPIED Bandwidth (MHz) |       |
|                         |                 | QPSK                         | 16QAM |                          |                 | QPSK                         | 16QAM |
| 19975                   | 1712.5          | 4.47                         | 4.47  | 20000                    | 1715            | 8.97                         | 8.94  |
| 20175                   | 1732.5          | 4.48                         | 4.49  | 20175                    | 1732.5          | 8.96                         | 8.95  |
| 20375                   | 1752.5          | 4.49                         | 4.47  | 20350                    | 1750            | 8.95                         | 8.95  |



#### LTE BAND 4

| CHANNEL BANDWIDTH: 15MHz |                 |                              |       | CHANNEL BANDWIDTH: 20MHz |                 |                              |       |
|--------------------------|-----------------|------------------------------|-------|--------------------------|-----------------|------------------------------|-------|
| CHANNEL                  | FREQUENCY (MHz) | 99% OCCUPIED BANDWIDTH (MHz) |       | CHANNEL                  | FREQUENCY (MHz) | 99% OCCUPIED BANDWIDTH (MHz) |       |
|                          |                 | QPSK                         | 16QAM |                          |                 | QPSK                         | 16QAM |
| 20025                    | 1717.5          | 13.44                        | 13.43 | 20050                    | 1720            | 17.95                        | 17.90 |
| 20175                    | 1732.5          | 13.43                        | 13.43 | 20175                    | 1732.5          | 17.90                        | 17.90 |
| 20325                    | 1747.5          | 13.41                        | 13.42 | 20300                    | 1745            | 17.94                        | 17.89 |

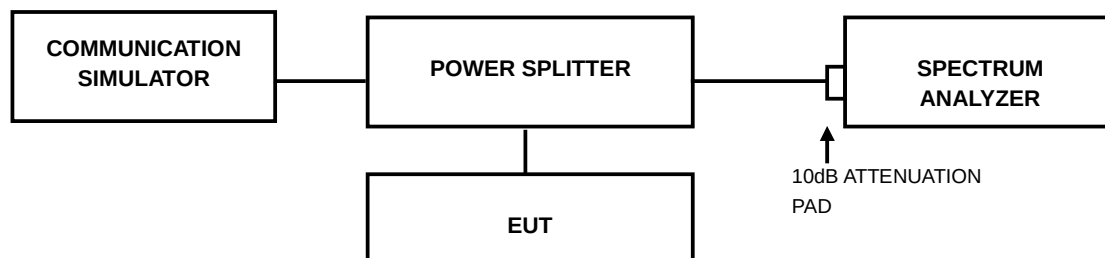


### 3.4 PEAK TO AVERAGE RATIO

#### 3.4.1 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

#### 3.4.2 TEST SETUP



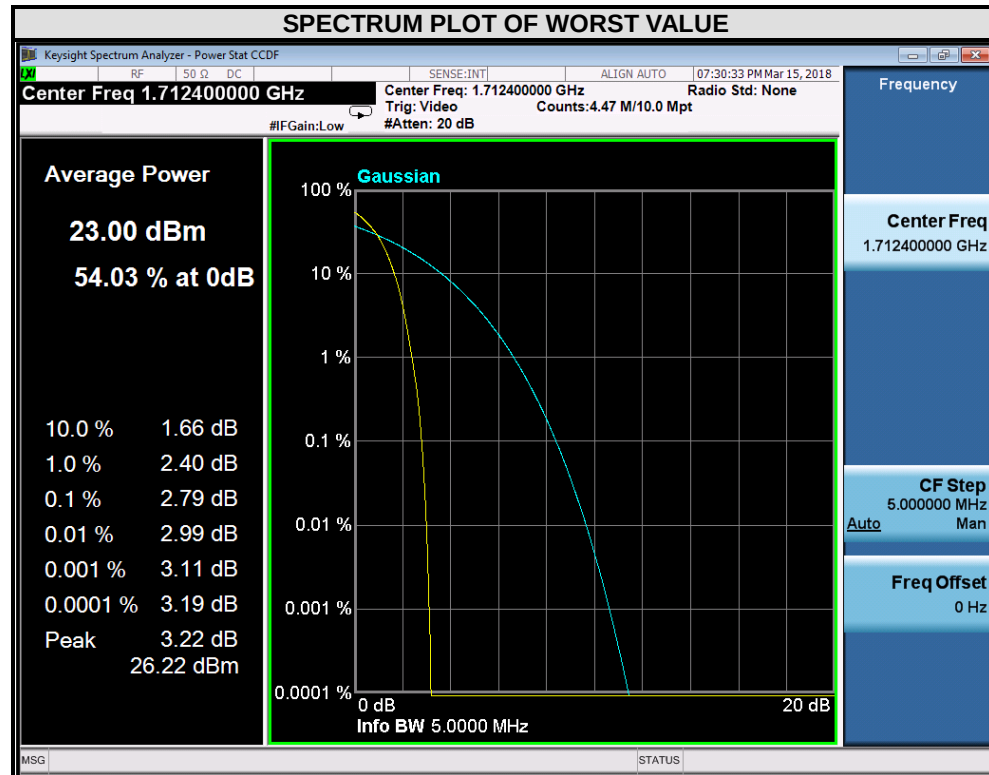
#### 3.4.3 TEST PROCEDURES

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%.

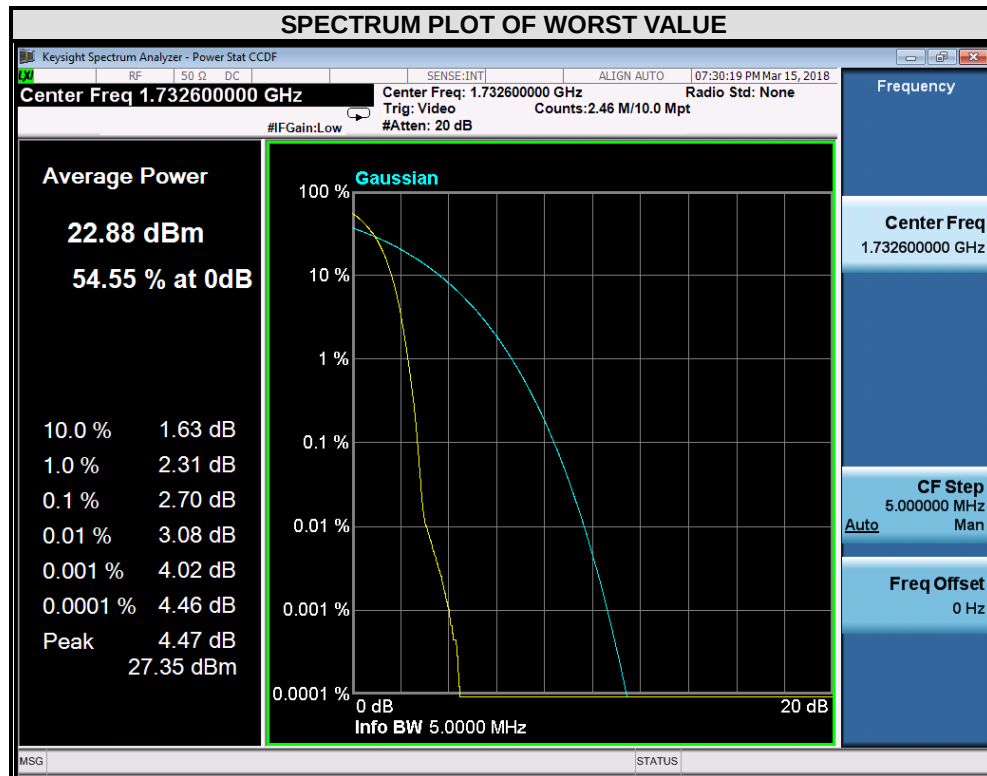
### 3.4.4 TEST RESULTS

#### WCDMA Band IV

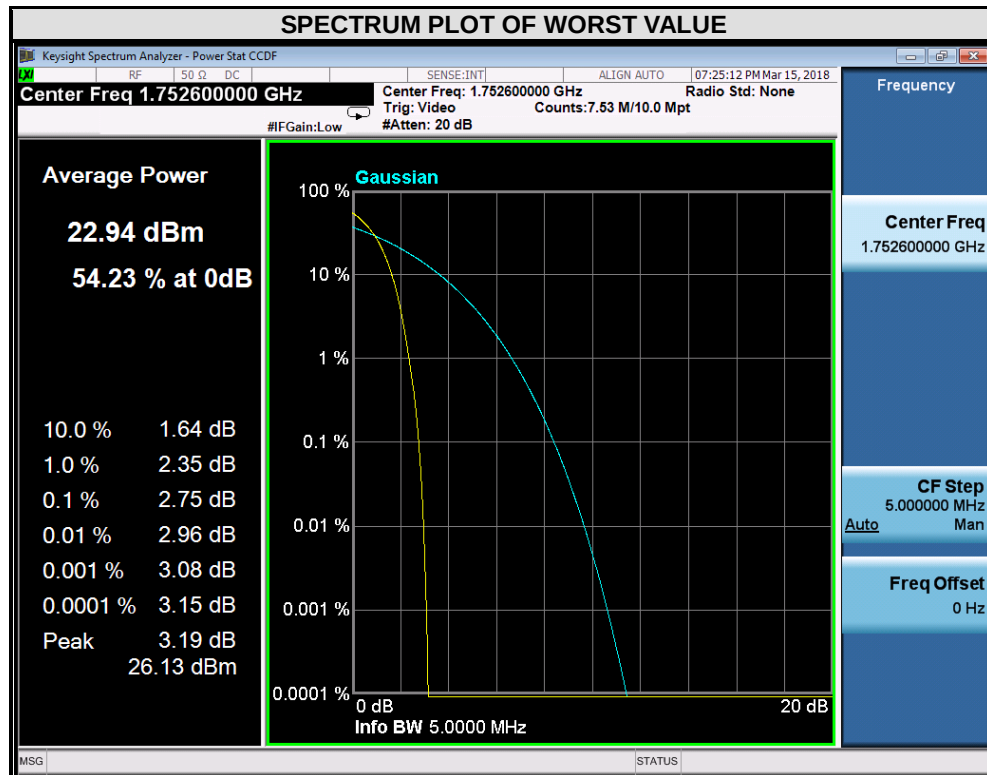
| CHANNEL | FREQUENCY (MHz) | PEAK TO AVERAGE RATIO (dB) |
|---------|-----------------|----------------------------|
| 1312    | 1712.4          | 2.79                       |



| CHANNEL | FREQUENCY (MHz) | PEAK TO AVERAGE RATIO (dB) |
|---------|-----------------|----------------------------|
| 1413    | 1732.6          | 2.70                       |

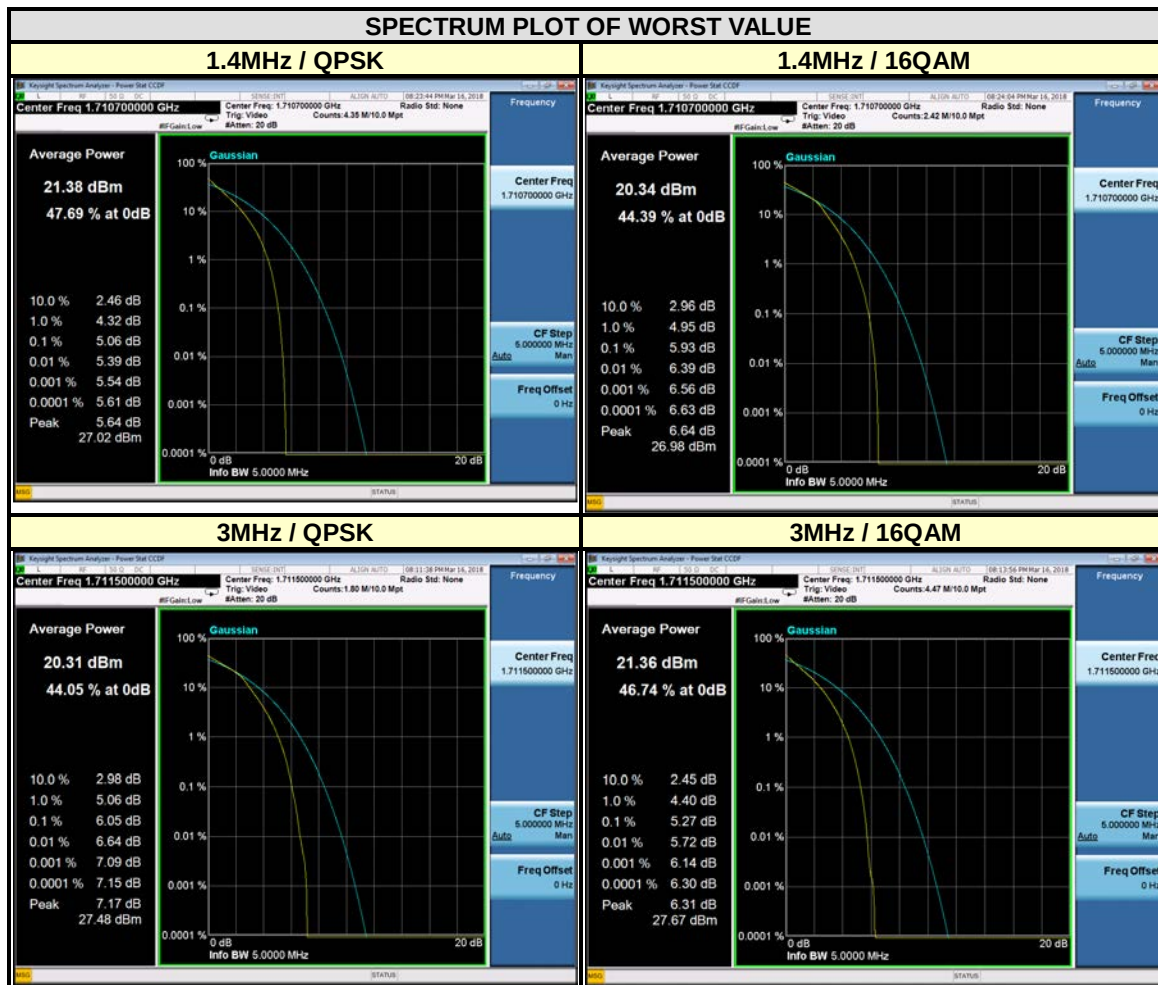


| CHANNEL | FREQUENCY (MHz) | PEAK TO AVERAGE RATIO (dB) |
|---------|-----------------|----------------------------|
| 1513    | 1752.6          | 2.75                       |

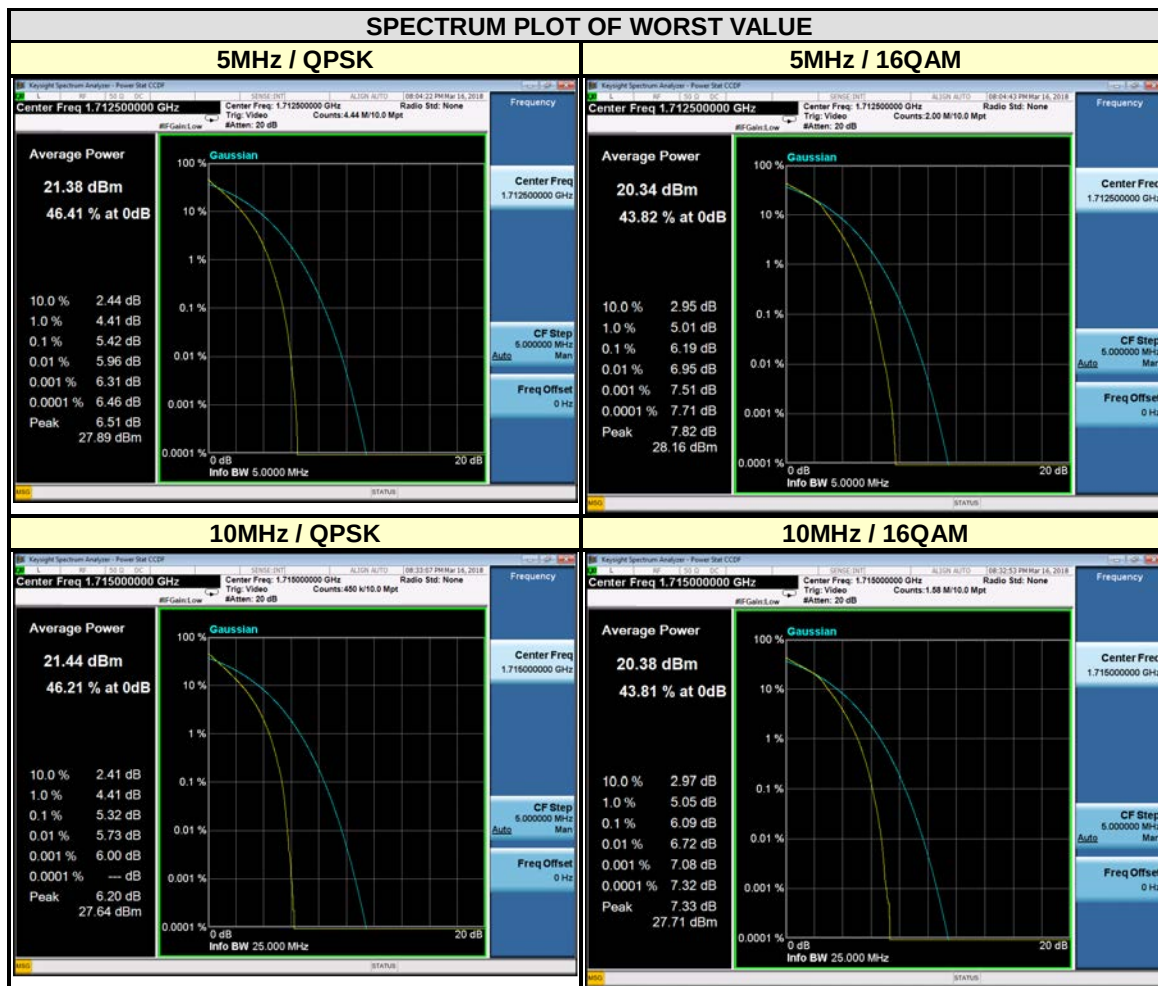


#### LTE BAND 4

| CHANNEL BANDWIDTH: 1.4MHz |                 |                            |       | CHANNEL BANDWIDTH: 3MHz |                 |                            |       |
|---------------------------|-----------------|----------------------------|-------|-------------------------|-----------------|----------------------------|-------|
| CHANNEL                   | FREQUENCY (MHz) | PEAK TO AVERAGE RATIO (dB) |       | CHANNEL                 | FREQUENCY (MHz) | PEAK TO AVERAGE RATIO (dB) |       |
|                           |                 | QPSK                       | 16QAM |                         |                 | QPSK                       | 16QAM |
| 19957                     | 1710.7          | 5.06                       | 5.93  | 19965                   | 1711.5          | 5.27                       | 6.05  |
| 20175                     | 1732.5          | 4.84                       | 5.70  | 20175                   | 1732.5          | 5.00                       | 5.81  |
| 20393                     | 1754.3          | 5.01                       | 5.90  | 20385                   | 1753.5          | 5.21                       | 6.01  |



| CHANNEL BANDWIDTH: 5MHz |                 |                            |       | CHANNEL BANDWIDTH: 10MHz |                 |                            |       |
|-------------------------|-----------------|----------------------------|-------|--------------------------|-----------------|----------------------------|-------|
| CHANNEL                 | FREQUENCY (MHz) | PEAK TO AVERAGE RATIO (dB) |       | CHANNEL                  | FREQUENCY (MHz) | PEAK TO AVERAGE RATIO (dB) |       |
|                         |                 | QPSK                       | 16QAM |                          |                 | QPSK                       | 16QAM |
| 19975                   | 1712.5          | 5.42                       | 6.19  | 20000                    | 1715            | 5.32                       | 6.09  |
| 20175                   | 1732.5          | 5.30                       | 6.04  | 20175                    | 1732.5          | 5.11                       | 5.92  |
| 20375                   | 1752.5          | 5.37                       | 6.14  | 20350                    | 1750            | 5.31                       | 6.08  |



| CHANNEL BANDWIDTH: 15MHz |                 |                            |       | CHANNEL BANDWIDTH: 20MHz |                 |                            |       |
|--------------------------|-----------------|----------------------------|-------|--------------------------|-----------------|----------------------------|-------|
| CHANNEL                  | FREQUENCY (MHz) | PEAK TO AVERAGE RATIO (dB) |       | CHANNEL                  | FREQUENCY (MHz) | PEAK TO AVERAGE RATIO (dB) |       |
|                          |                 | QPSK                       | 16QAM |                          |                 | QPSK                       | 16QAM |
| 20025                    | 1717.5          | 5.42                       | 6.17  | 20050                    | 1720            | 5.43                       | 6.21  |
| 20175                    | 1732.5          | 5.28                       | 6.01  | 20175                    | 1732.5          | 5.38                       | 6.15  |
| 20325                    | 1747.5          | 5.45                       | 6.15  | 20300                    | 1745            | 5.42                       | 6.12  |



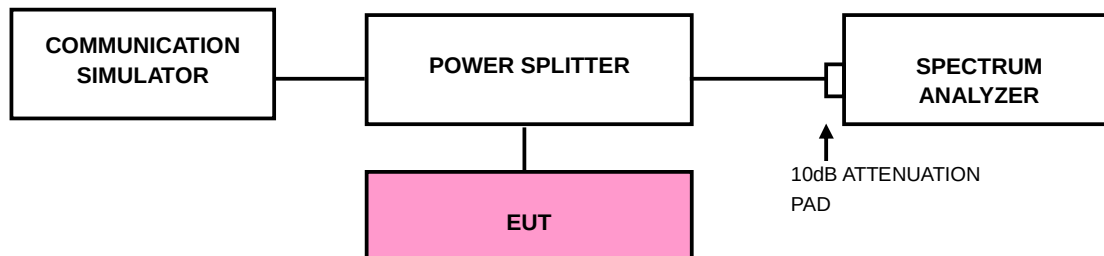
### 3.5 BAND EDGE MEASUREMENT

#### 3.5.1 LIMITS OF BAND EDGE MEASUREMENT

The power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43 + 10 \log (P)$  dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater.

However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

#### 3.5.2 TEST SETUP



### 3.5.3 TEST PROCEDURES

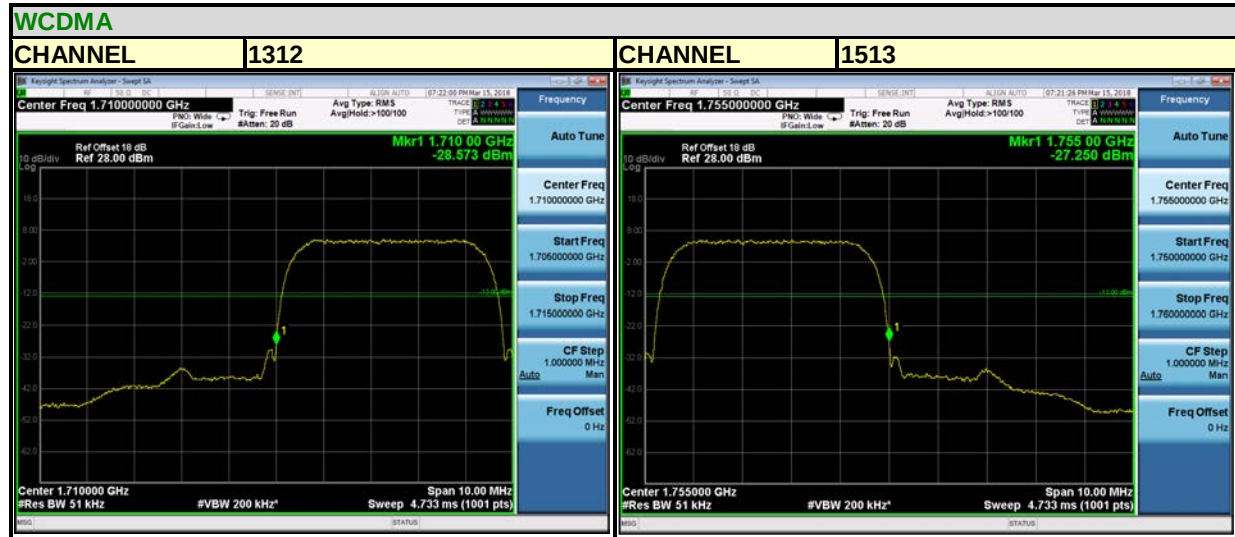
- a. The EUT was set up for the maximum peak power with LTE link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels (low and high operational frequency range.).
- b. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- c. The center frequency of spectrum is the band edge frequency and span is 10MHz. RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz (WCDMA).
- d. 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)
- e. 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)
- f. 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)
- g. 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)
- h. 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)
- i. 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 20MHz)
- j. Record the max trace plot into the test report.



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### 3.5.4 TEST RESULTS

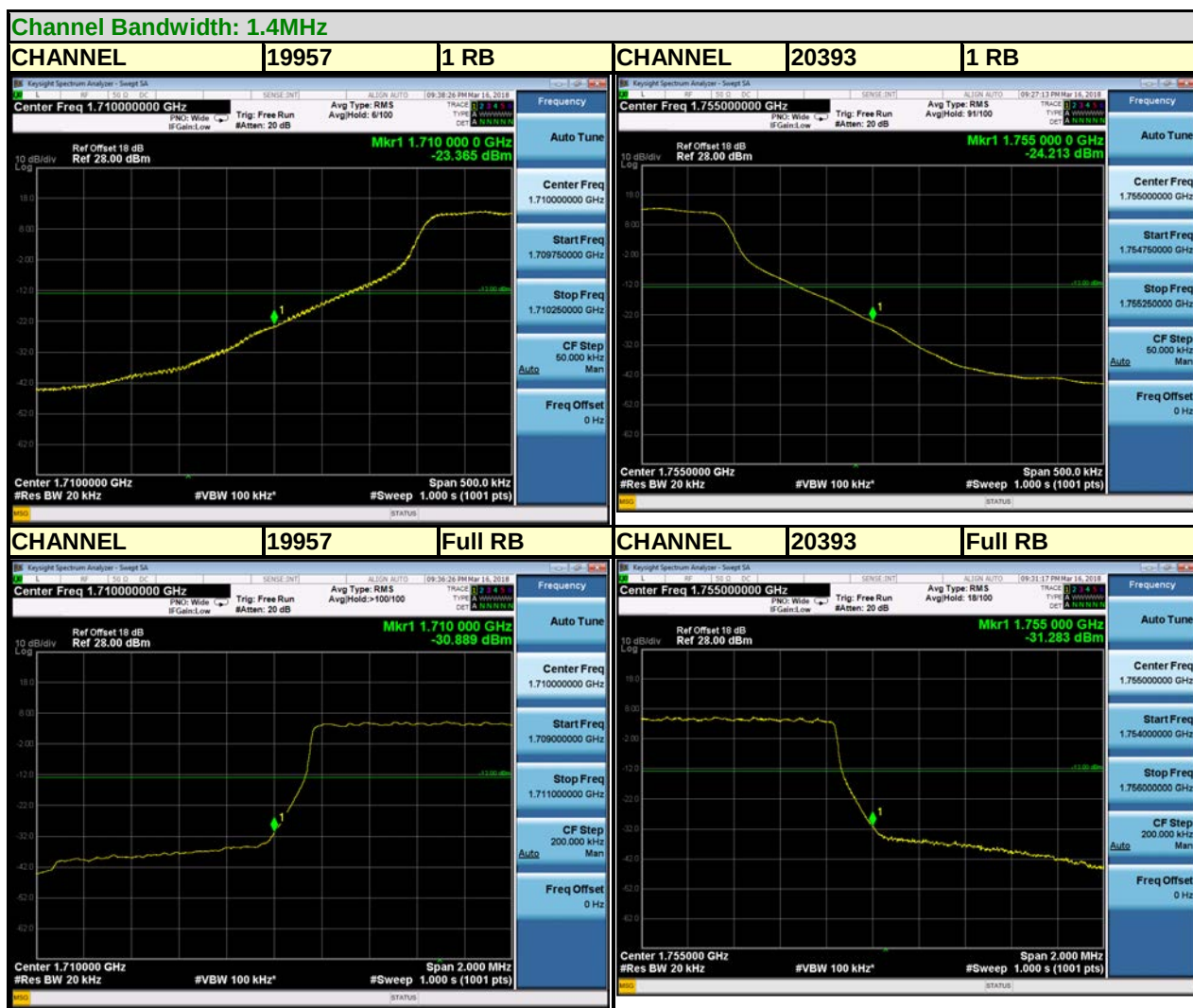
#### WCDMA BAND 4





Test Report No.: RF180227W007-5

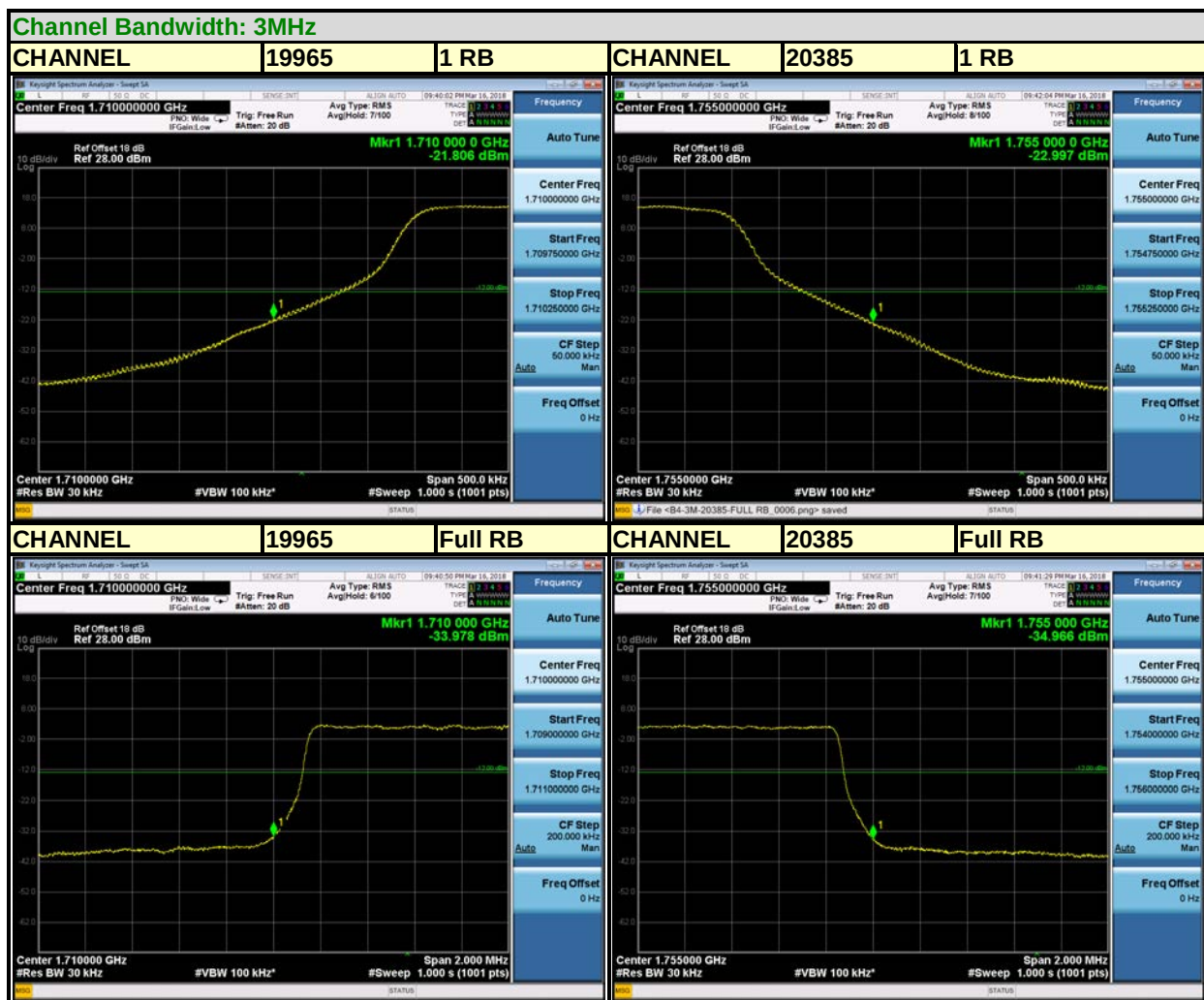
## LTE BAND 4





Test Report No.: RF180227W007-5

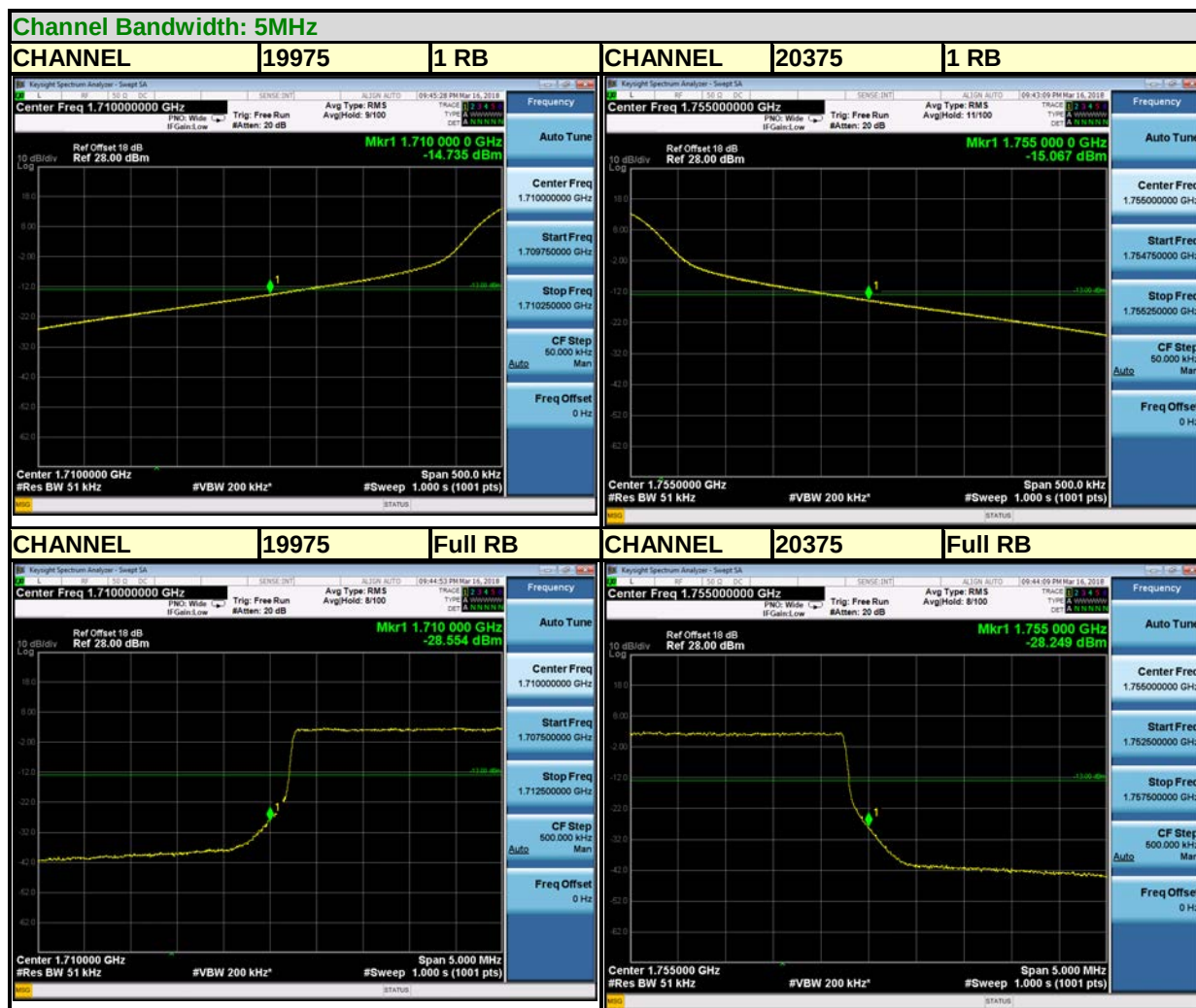
## LTE BAND 4





Test Report No.: RF180227W007-5

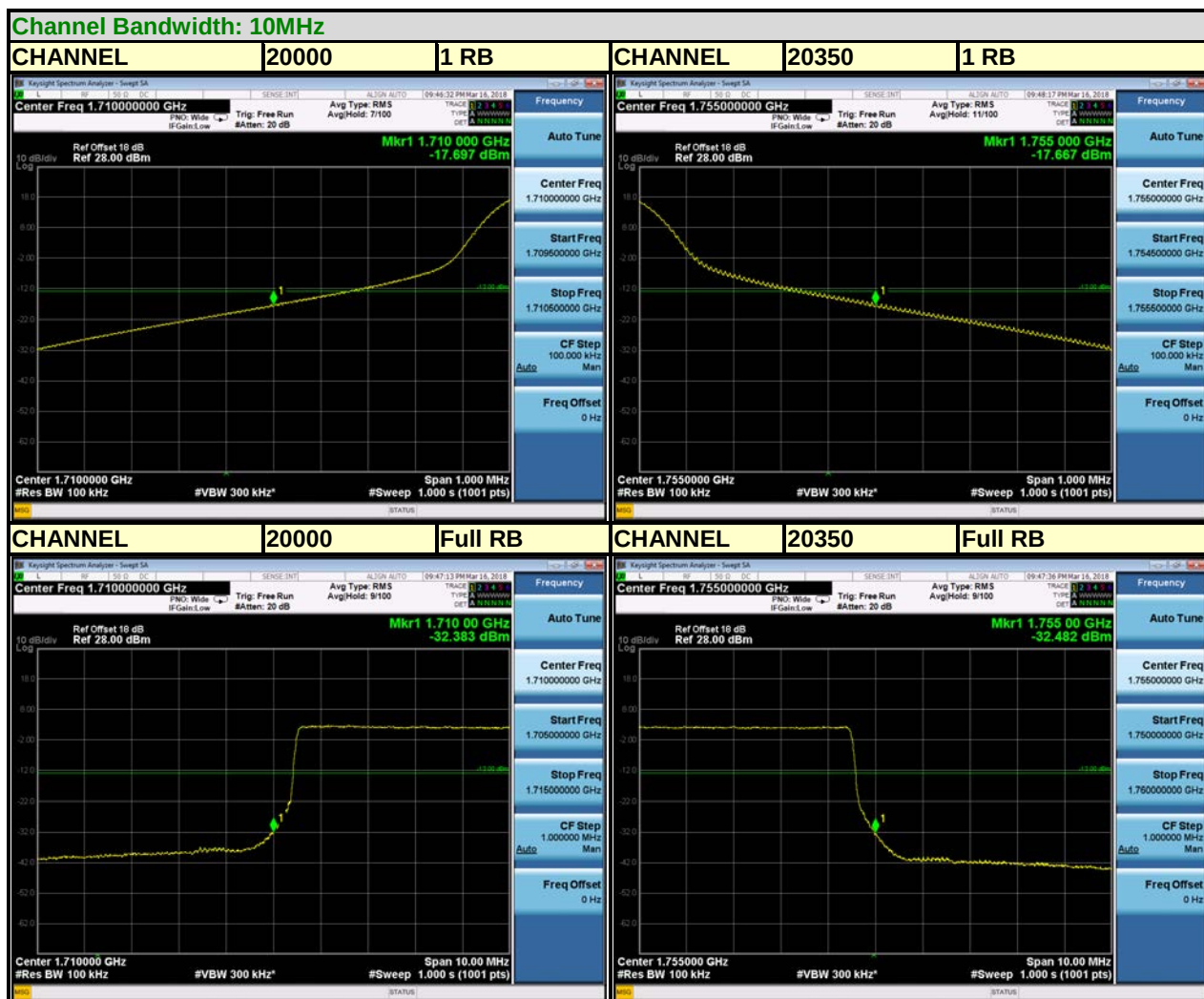
## LTE BAND 4





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## LTE BAND 4





Test Report No.: RF180227W007-5

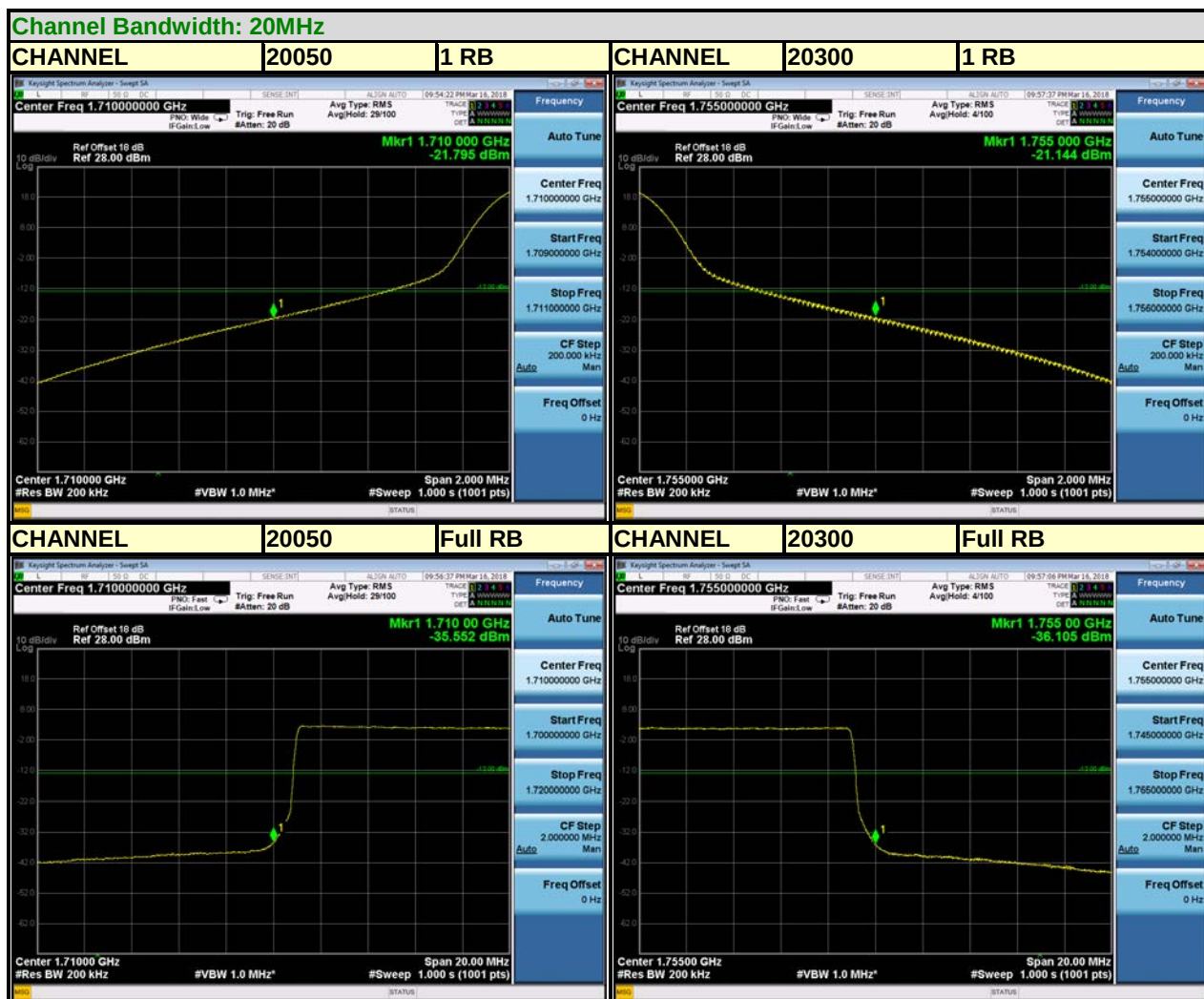
## LTE BAND 4





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## LTE BAND 4



### 3.6 CONDUCTED SPURIOUS EMISSIONS

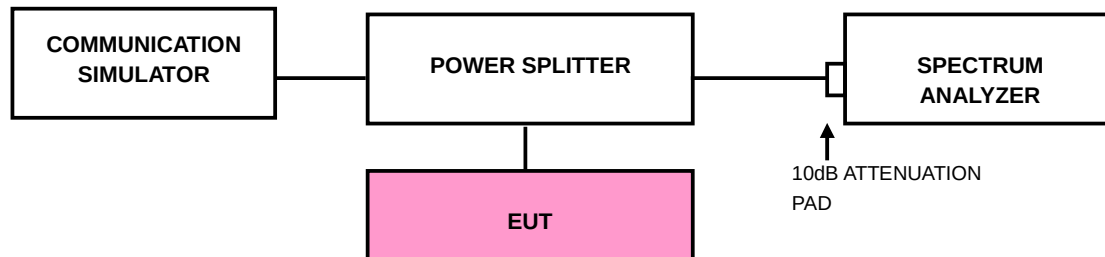
#### 3.6.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10}(P)$  dB. The limit of emission equal to  $-13\text{dBm}$

#### 3.6.2 TEST PROCEDURE

- The EUT makes a phone call to the communication simulator. All measurements were done at middle operational frequency range.
- Measuring frequency range is from 30 MHz to 17.55GHz for WCDMA Band 4 and LTE Band 4. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are used for conducted emission measurement.

#### 3.6.3 TEST SETUP



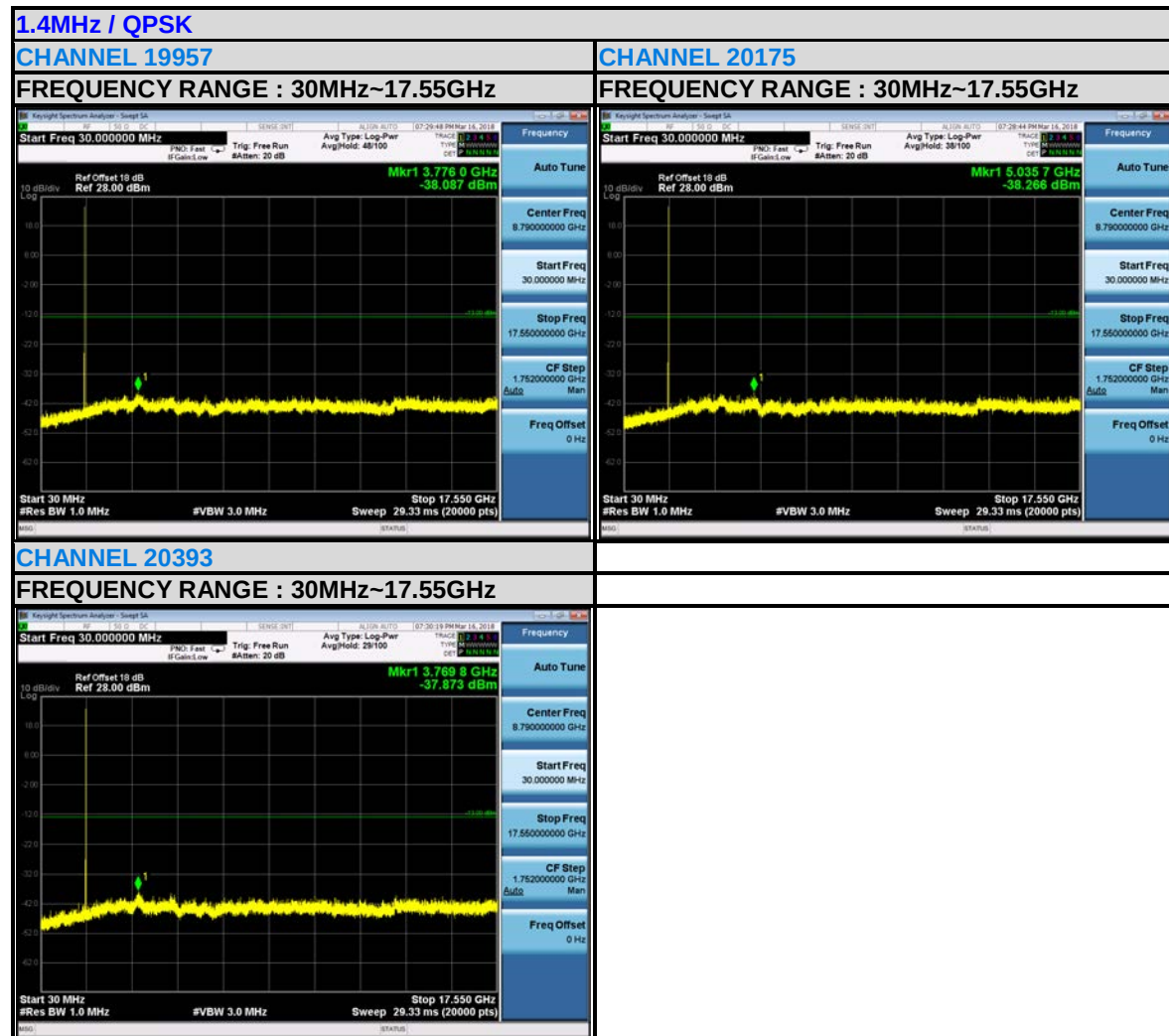
### 3.6.4 TEST RESULTS

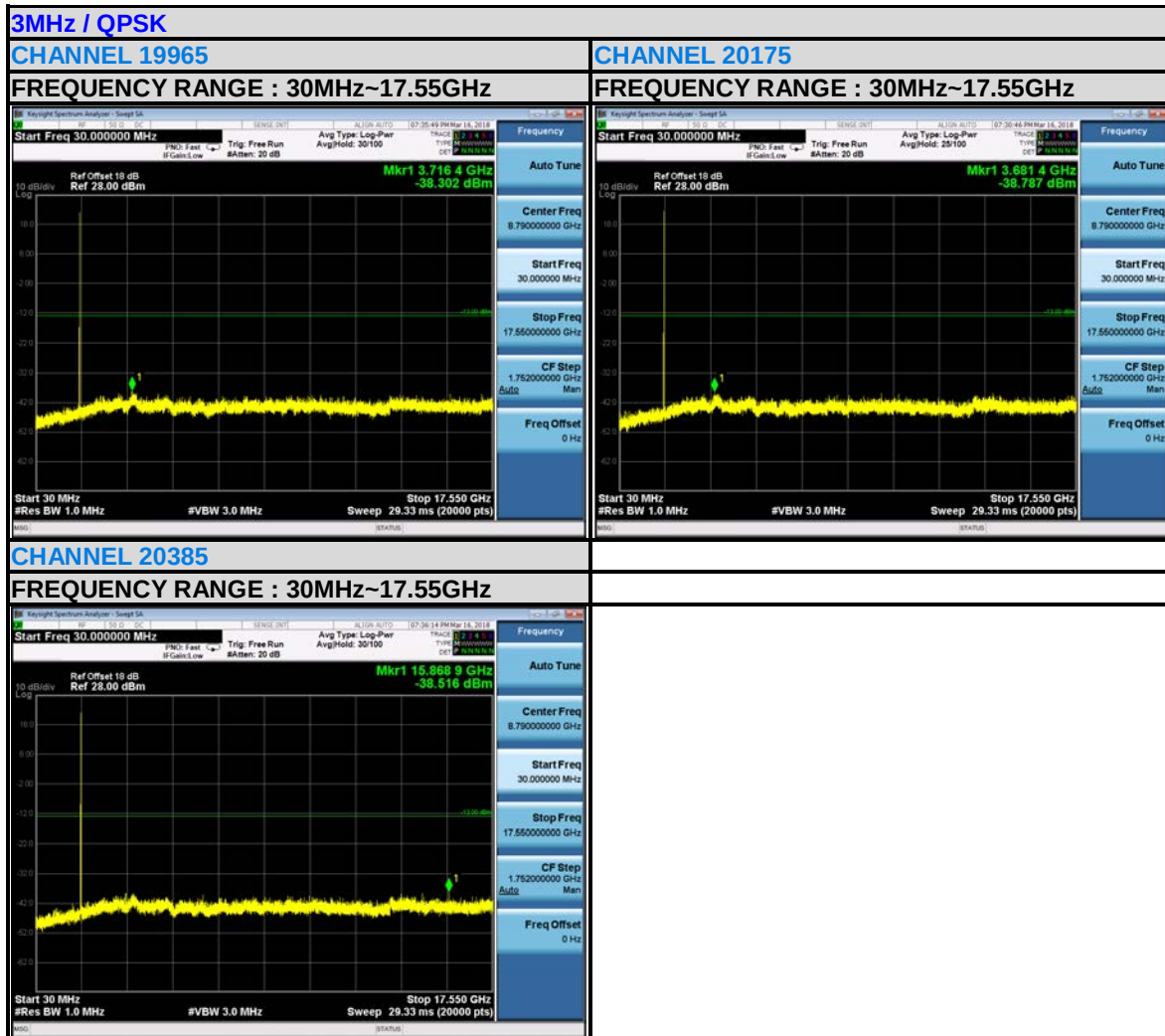


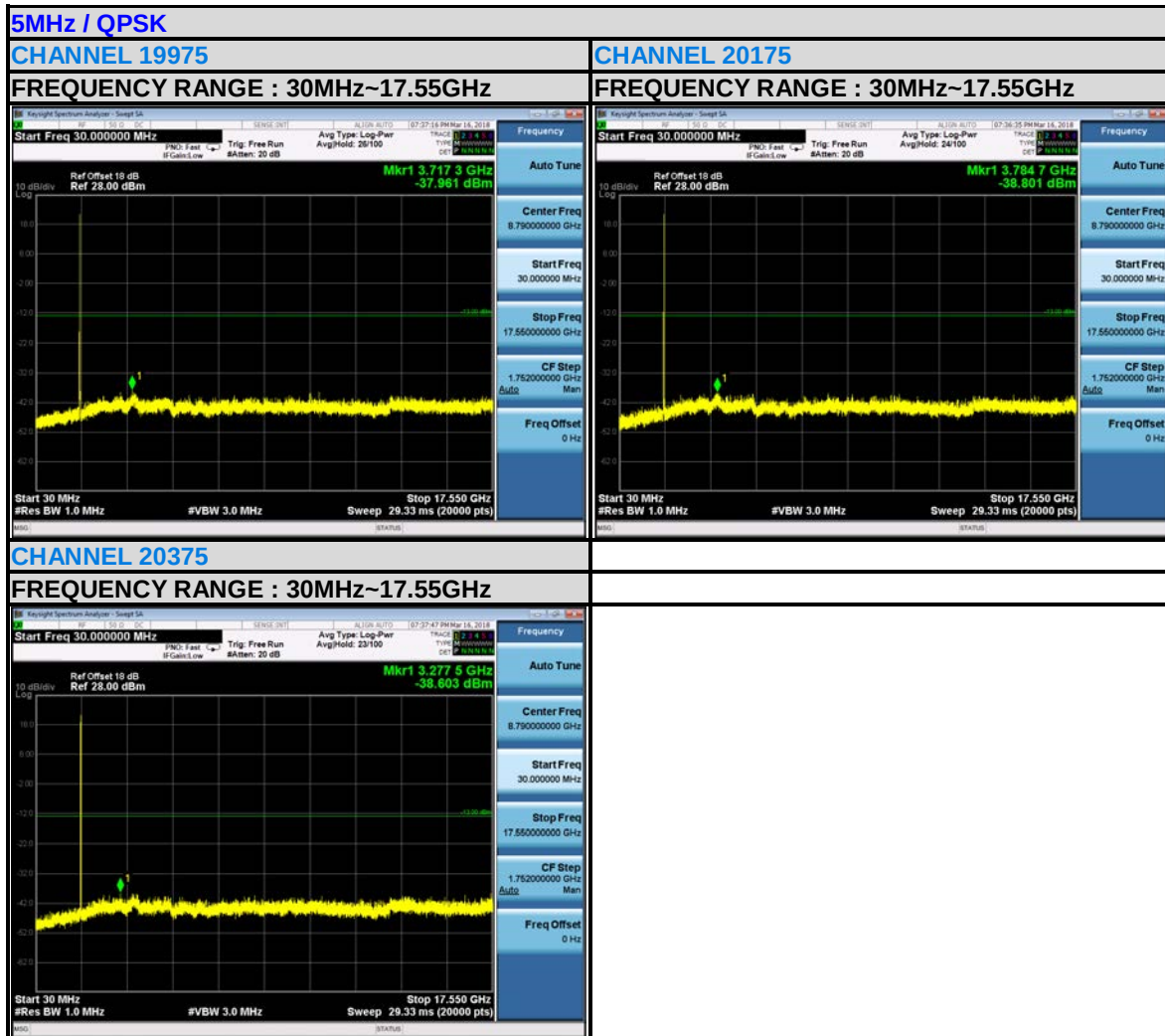


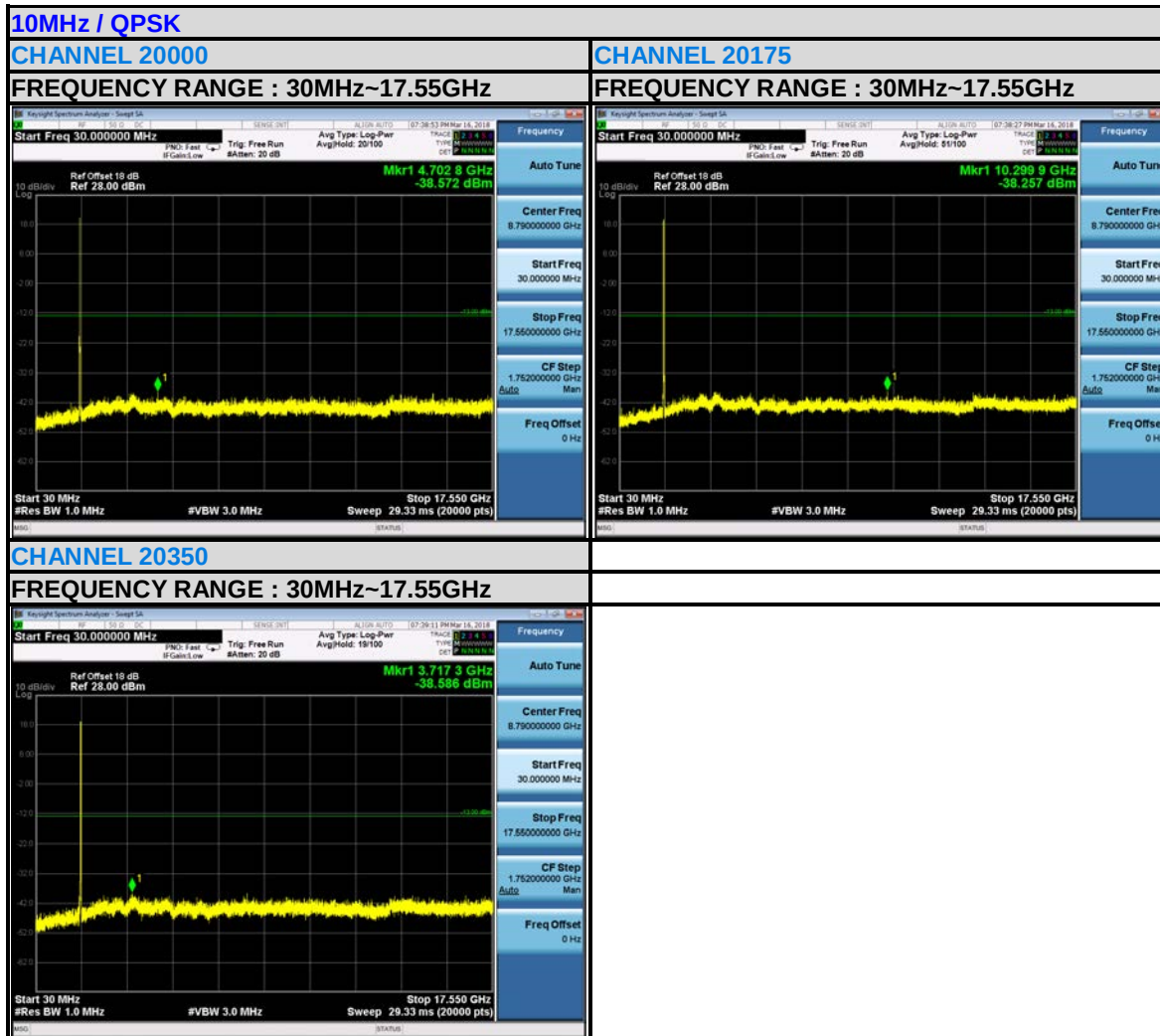
Test Report No.: RF180227W007-5

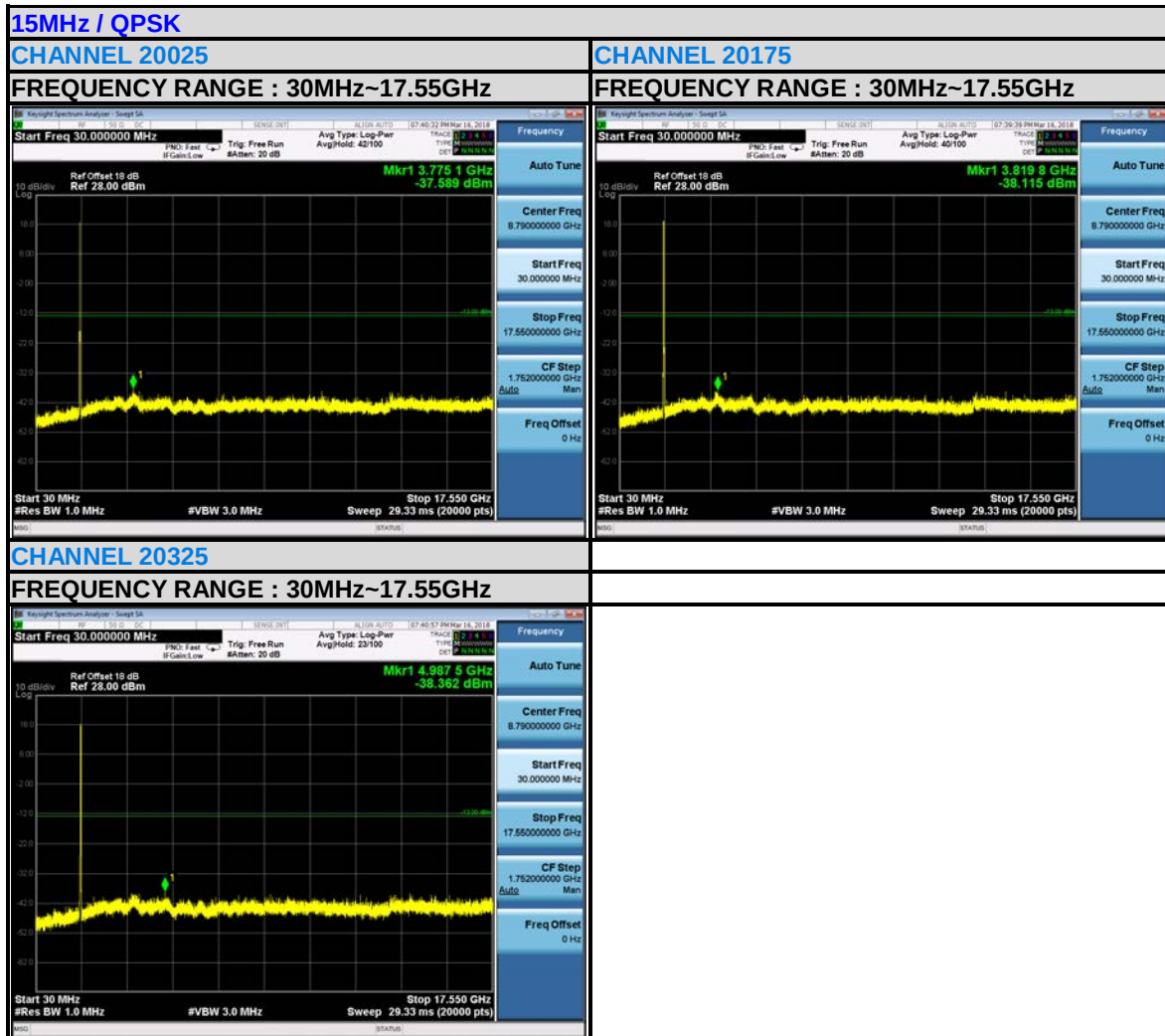
## LTE BAND 4

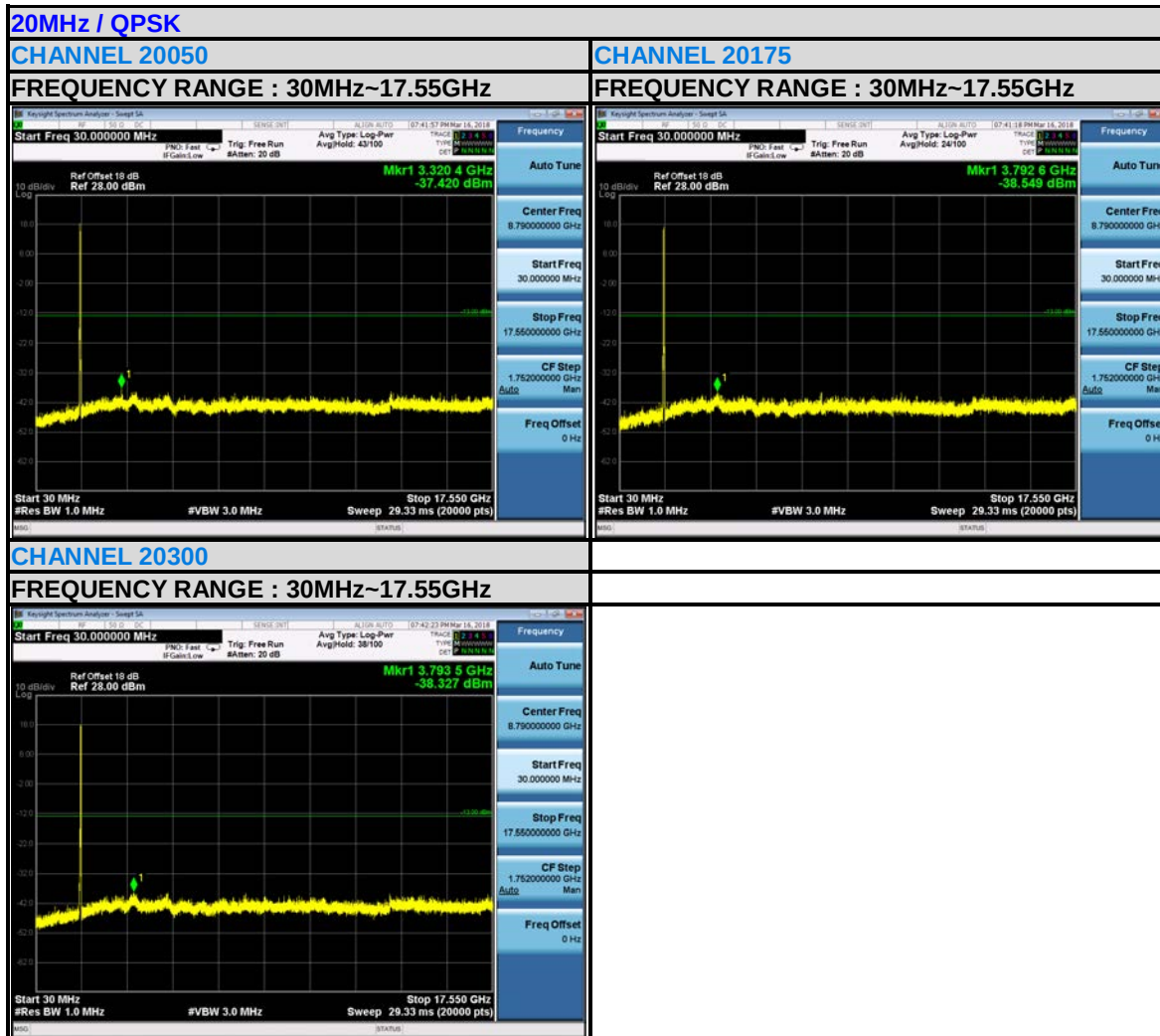












### 3.7 RADIATED EMISSION MEASUREMENT

#### 3.7.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10}(P)$  dB. The limit of emission equal to  $-13\text{dBm}$

#### 3.7.2 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.  $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}.$
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,  $\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi}.$

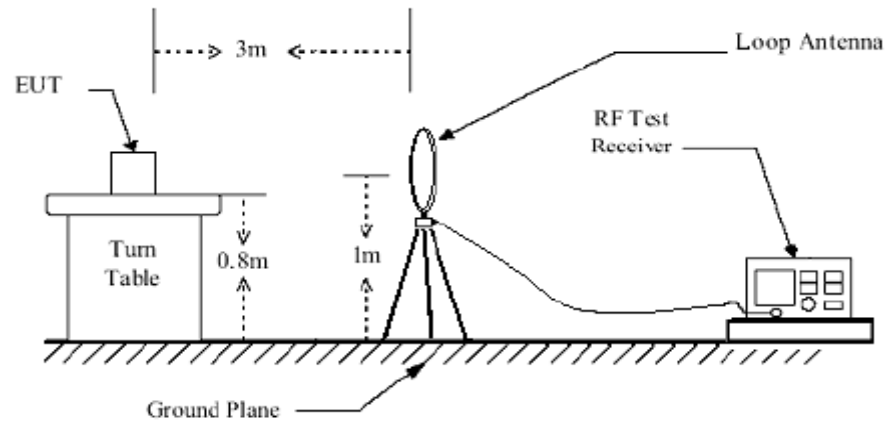
**NOTE:** The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

#### 3.7.3 DEVIATION FROM TEST STANDARD

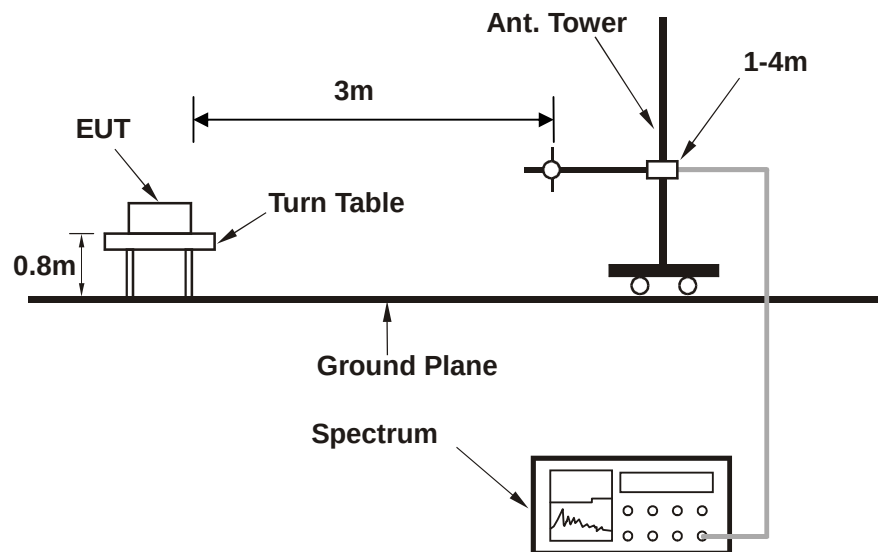
No deviation

### 3.7.4 TEST SETUP

#### <Below 30MHz>



#### <Above 30MHz>



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

### 3.7.5 TEST RESULTS

#### BELOW 1GHz WORST-CASE DATA

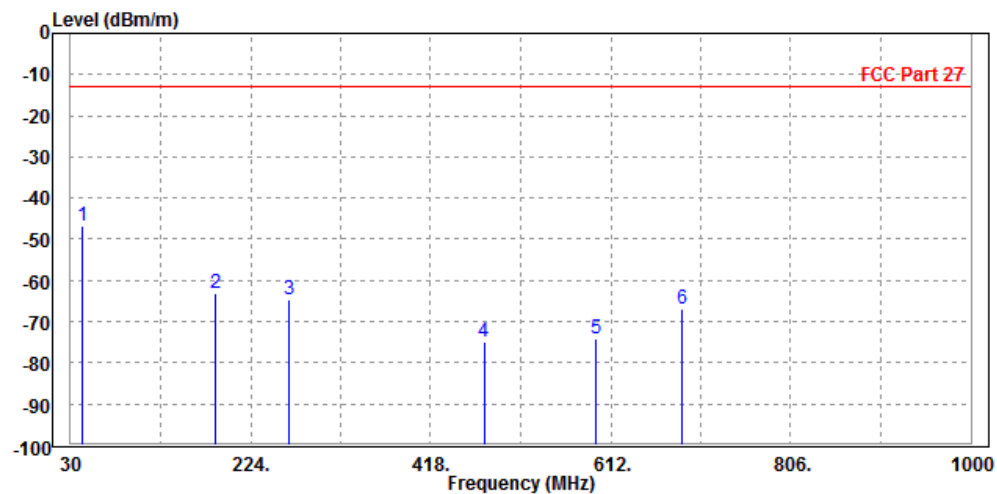
**9 KHz – 30 KHz data:** the amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

**30 MHz – 1GHz data:**

**LTE Band 4:**

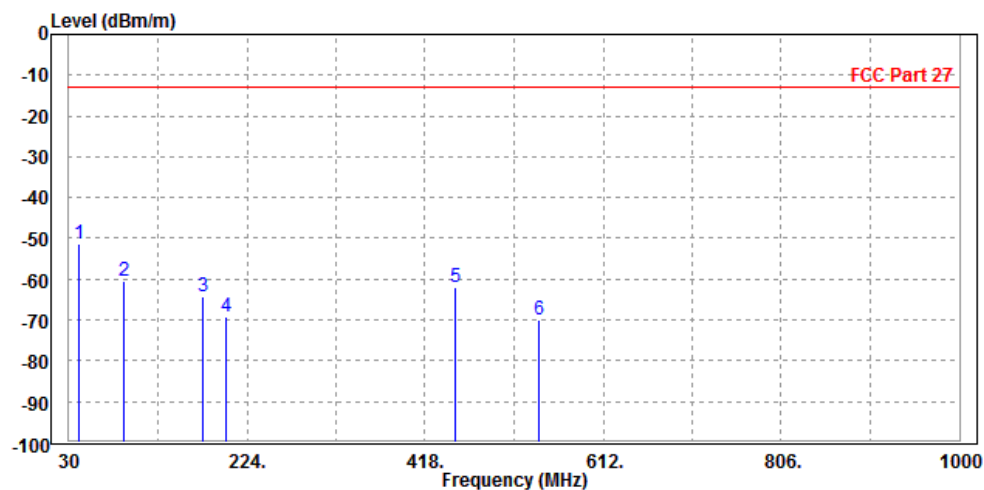
|                                                     |                  |                 |                    |
|-----------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                                | TX channel 20175 | FREQUENCY RANGE | Below 1000MHz      |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                           | Star Le          |                 |                    |
| 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 | 42.230  | -46.59 | -56.71     | -13.00     | -33.59     | 10.12  | Peak   | Horizontal |
| 2    | 185.320 | -63.08 | -45.46     | -13.00     | -50.08     | -17.62 | Peak   | Horizontal |
| 3    | 265.450 | -64.60 | -49.09     | -13.00     | -51.60     | -15.51 | Peak   | Horizontal |
| 4    | 475.360 | -74.79 | -64.39     | -13.00     | -61.79     | -10.40 | Peak   | Horizontal |
| 5    | 596.580 | -74.24 | -65.49     | -13.00     | -61.24     | -8.75  | Peak   | Horizontal |
| 6    | 688.590 | -66.95 | -61.20     | -13.00     | -53.95     | -5.75  | Peak   | Horizontal |



|                                                   |                  |                 |                    |
|---------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                              | TX channel 20175 | FREQUENCY RANGE | Below 1000MHz      |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                         | Star Le          |                 |                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                  |                 |                    |

|      | Freq    | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|---------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz     | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 PP | 41.360  | -51.37 | -49.57     | -13.00     | -38.37     | -1.80  | Peak   | Vertical  |
| 2    | 90.210  | -60.54 | -50.00     | -13.00     | -47.54     | -10.54 | Peak   | Vertical  |
| 3    | 175.890 | -64.12 | -50.52     | -13.00     | -51.12     | -13.60 | Peak   | Vertical  |
| 4    | 201.340 | -69.35 | -58.69     | -13.00     | -56.35     | -10.66 | Peak   | Vertical  |
| 5    | 451.290 | -61.98 | -52.94     | -13.00     | -48.98     | -9.04  | Peak   | Vertical  |
| 6    | 542.310 | -70.03 | -62.75     | -13.00     | -57.03     | -7.28  | Peak   | Vertical  |





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# ABOVE 1GHz

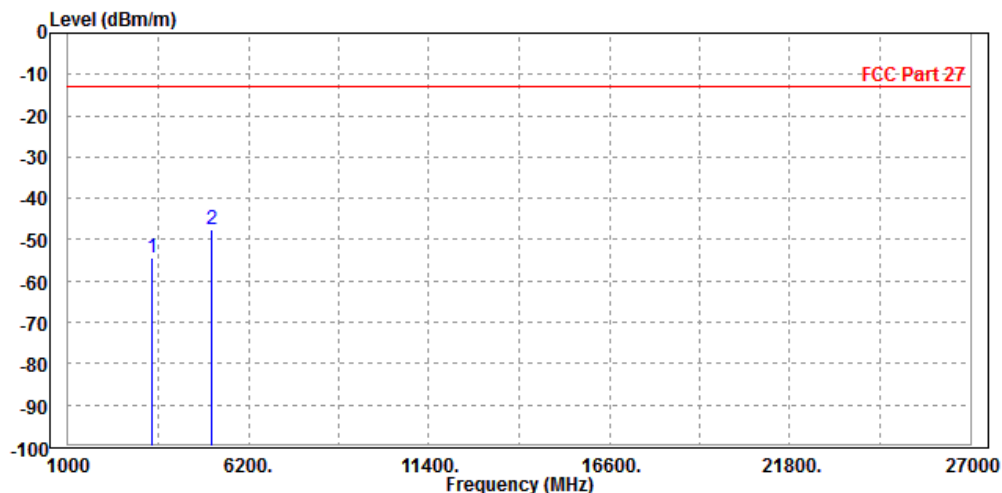
**Note:** For higher frequency, the emission is too low to be detected.

## WCDMA Band IV:

### CH 1312

|                                                     |                 |                 |                    |
|-----------------------------------------------------|-----------------|-----------------|--------------------|
| MODE                                                | TX channel 1312 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                           | Simon Yang      |                 |                    |
| 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    | 3418.000 | -54.52 | -56.37     | -13.00     | -41.52     | 1.85   | Peak   | Horizontal |
| 2 PP | 5137.000 | -47.69 | -56.23     | -13.00     | -34.69     | 8.54   | Peak   | Horizontal |

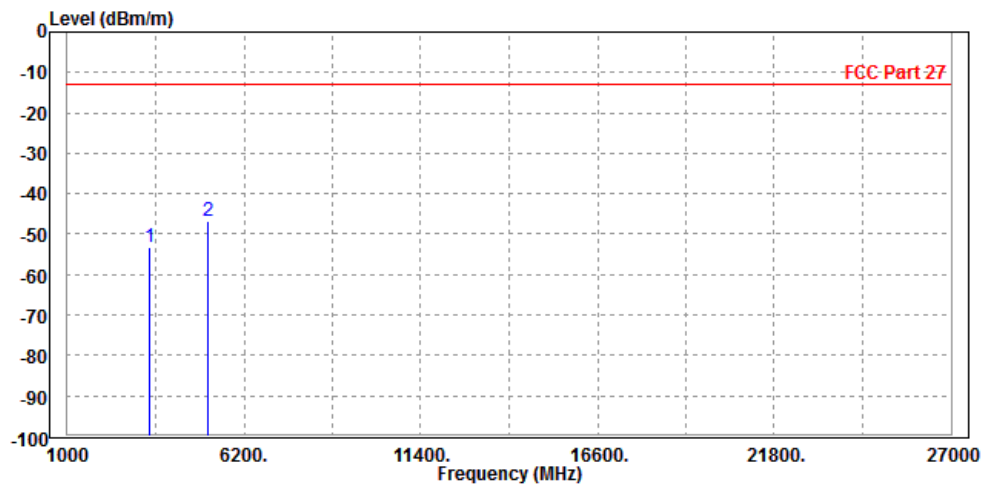




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|                                                   |                 |                 |                    |
|---------------------------------------------------|-----------------|-----------------|--------------------|
| MODE                                              | TX channel 1312 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                         | Simon Yang      |                 |                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                 |                 |                    |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|----------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 3418.000 | -53.06 | -55.53     | -13.00     | -40.06     | 2.47   | Peak   | Vertical  |
| 2 PP | 5137.000 | -46.59 | -54.58     | -13.00     | -33.59     | 7.99   | Peak   | Vertical  |



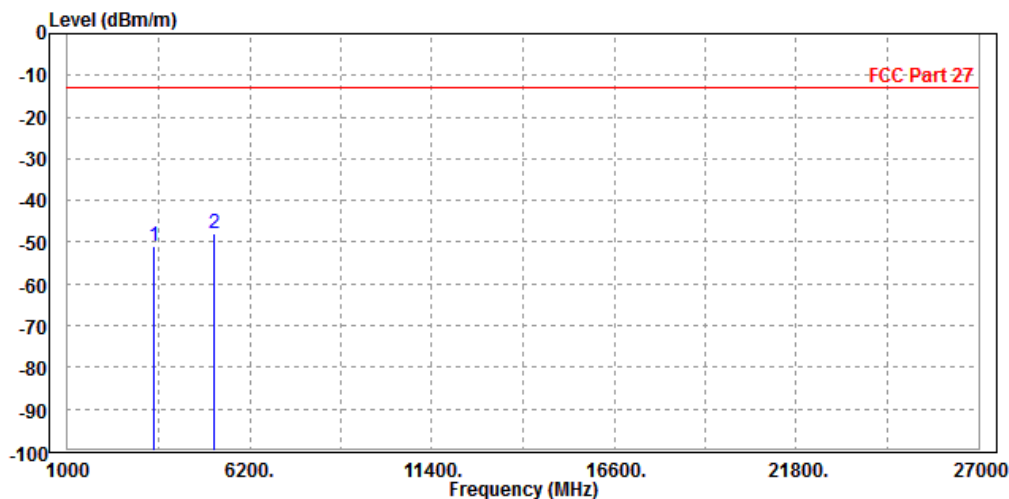


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# CH 1413

|                                                     |                 |                 |                    |
|-----------------------------------------------------|-----------------|-----------------|--------------------|
| MODE                                                | TX channel 1413 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                           | Simon Yang      |                 |                    |
| 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    | 3470.000 | -51.11 | -53.16     | -13.00     | -38.11     | 2.05   | Peak   | Horizontal |
| 2 PP | 5197.000 | -48.05 | -56.66     | -13.00     | -35.05     | 8.61   | Peak   | Horizontal |

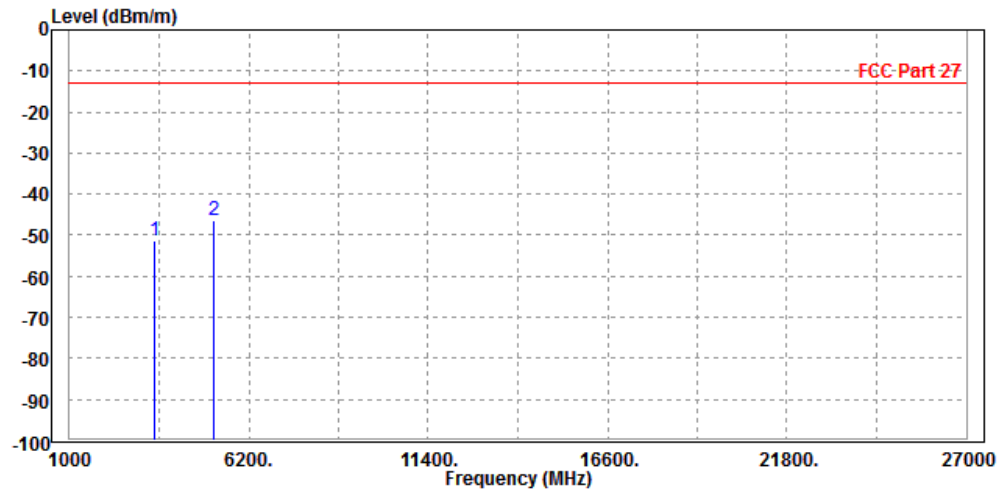




Test Report No.: RF180227W007-5

|                                                   |                 |                 |                    |
|---------------------------------------------------|-----------------|-----------------|--------------------|
| MODE                                              | TX channel 1413 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                         | Simon Yang      |                 |                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                 |                 |                    |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|----------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 3470.000 | -51.21 | -53.74     | -13.00     | -38.21     | 2.53   | Peak   | Vertical  |
| 2 PP | 5197.000 | -46.25 | -54.23     | -13.00     | -33.25     | 7.98   | Peak   | Vertical  |



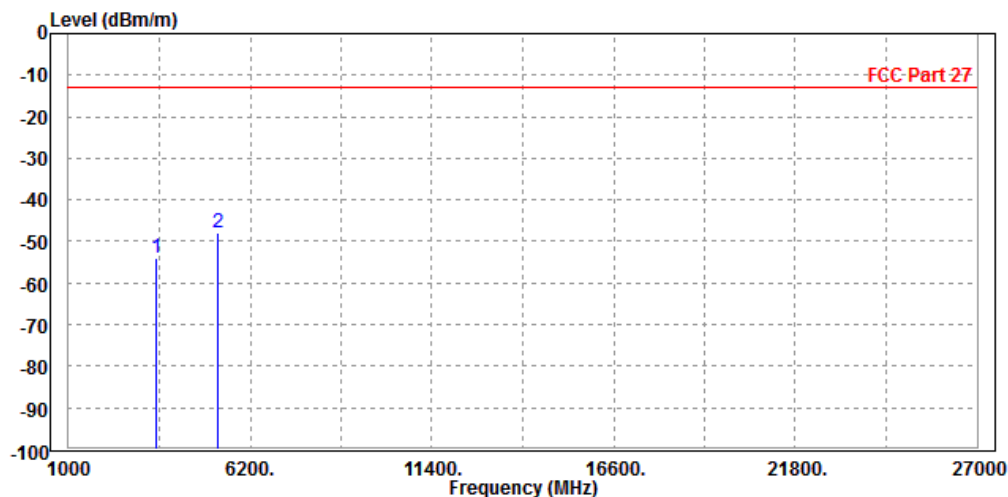


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CH 1513

|                                                     |                 |                 |                    |
|-----------------------------------------------------|-----------------|-----------------|--------------------|
| MODE                                                | TX channel 1513 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                           | Simon Yang      |                 |                    |
| 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    | 3496.000 | -53.85 | -56.00     | -13.00     | -40.85     | 2.15   | Peak   | Horizontal |
| 2 PP | 5258.000 | -47.82 | -56.50     | -13.00     | -34.82     | 8.68   | Peak   | Horizontal |

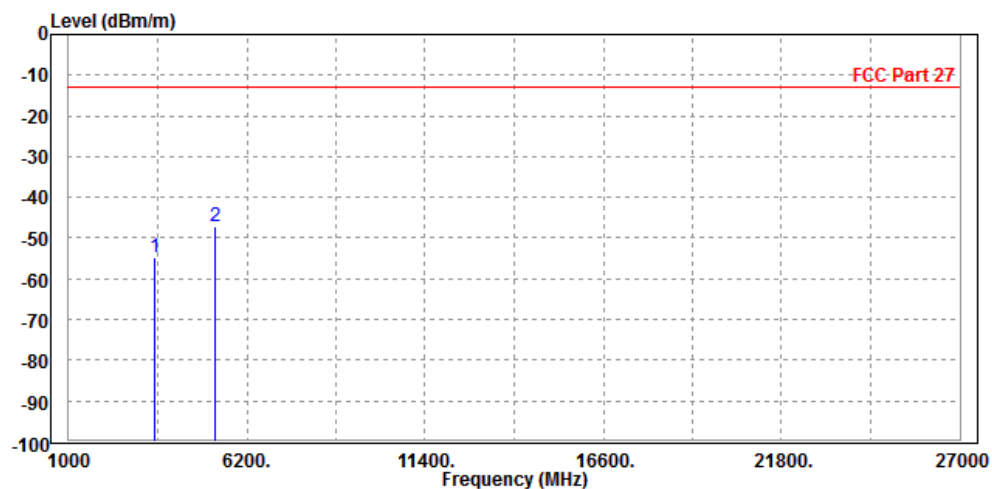




Test Report No.: RF180227W007-5

|                                                   |                 |                 |                    |
|---------------------------------------------------|-----------------|-----------------|--------------------|
| MODE                                              | TX channel 1513 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                         | Simon Yang      |                 |                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                 |                 |                    |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|----------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 3496.000 | -54.83 | -57.39     | -13.00     | -41.83     | 2.56   | Peak   | Vertical  |
| 2 PP | 5258.000 | -47.08 | -55.06     | -13.00     | -34.08     | 7.98   | Peak   | Vertical  |





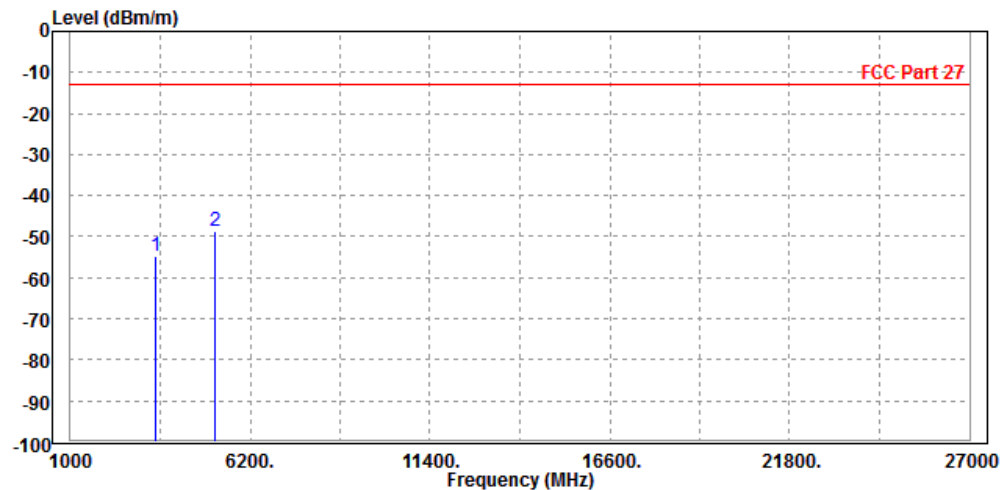
Test Report No.: RF180227W007-5

#### LTE BAND 4

CHANNEL BANDWIDTH: 1.4MHz / QPSK

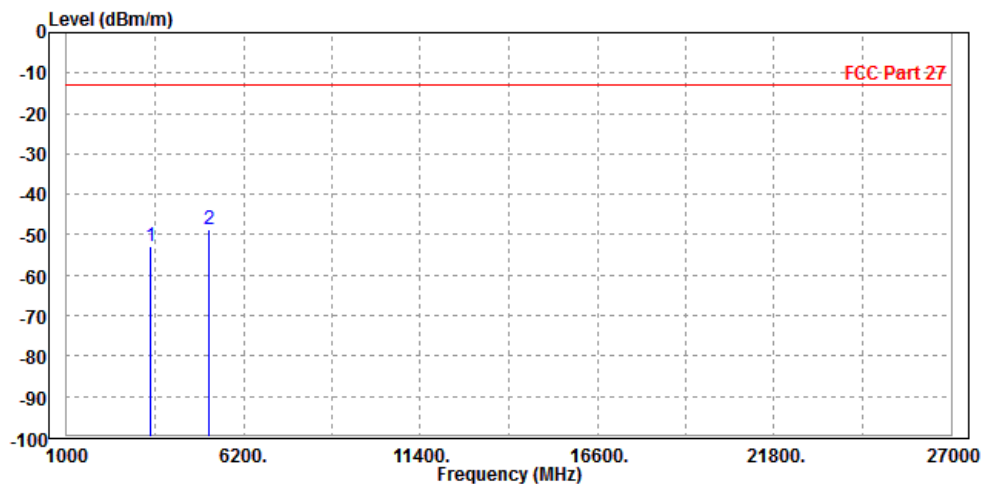
|                                                     |                  |                 |                    |
|-----------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                                | TX channel 20175 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                           | Star Le          |                 |                    |
| 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    | 3444.000 | -54.72 | -56.67     | -13.00     | -41.72     | 1.95   | Peak   | Horizontal |
| 2 PP | 5197.000 | -48.54 | -57.15     | -13.00     | -35.54     | 8.61   | Peak   | Horizontal |



|                                                   |                  |                 |                    |
|---------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                              | TX channel 20175 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                         | Star Le          |                 |                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                  |                 |                    |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|----------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 3444.000 | -52.85 | -55.35     | -13.00     | -39.85     | 2.50   | Peak   | Vertical  |
| 2 PP | 5197.000 | -48.69 | -56.67     | -13.00     | -35.69     | 7.98   | Peak   | Vertical  |



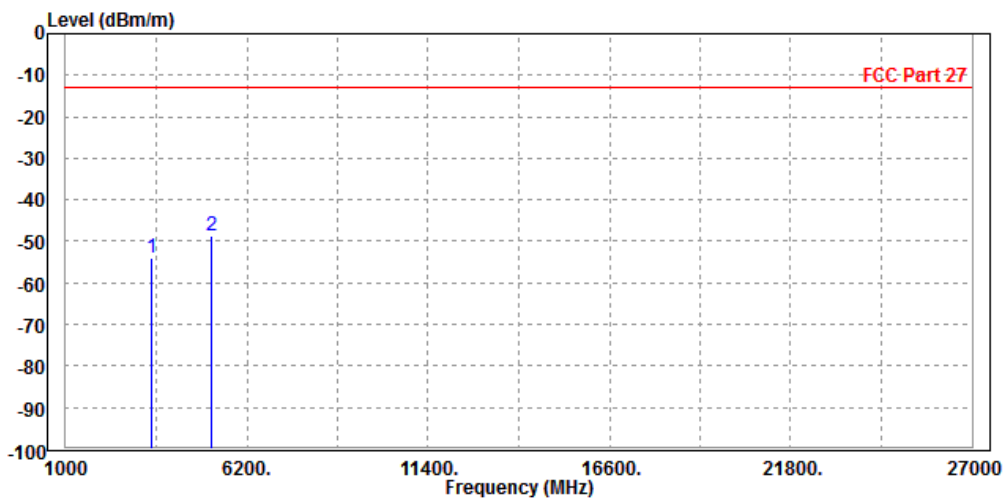


Test Report No.: RF180227W007-5

CHANNEL BANDWIDTH: 3MHz / QPSK

|                                                     |                  |                 |                    |
|-----------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                                | TX channel 20175 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                           | Star Le          |                 |                    |
| 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    | 3444.000 | -53.94 | -55.89     | -13.00     | -40.94     | 1.95   | Peak   | Horizontal |
| 2 PP | 5197.000 | -48.63 | -57.24     | -13.00     | -35.63     | 8.61   | Peak   | Horizontal |

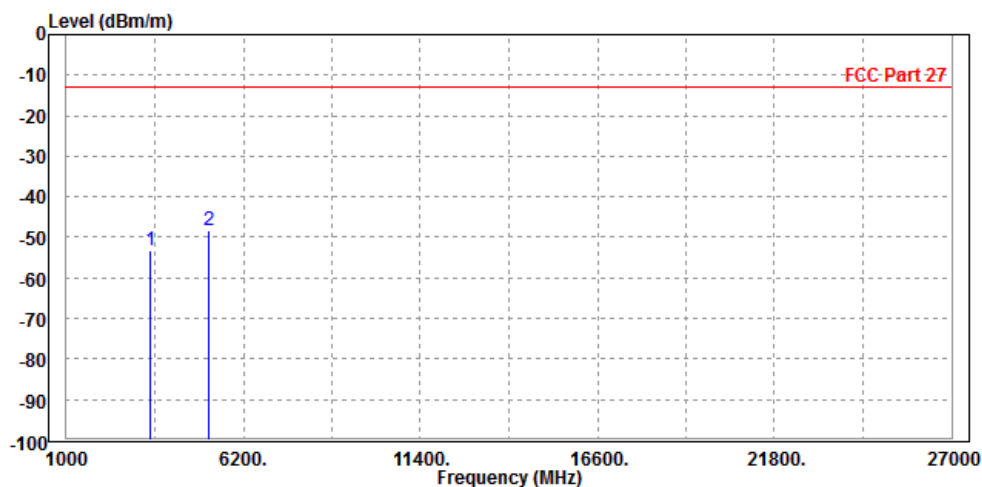




Test Report No.: RF180227W007-5

|                                                   |                  |                 |                    |
|---------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                              | TX channel 20175 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                         | Star Le          |                 |                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                  |                 |                    |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|----------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 3444.000 | -53.15 | -55.65     | -13.00     | -40.15     | 2.50   | Peak   | Vertical  |
| 2 PP | 5197.000 | -48.48 | -56.46     | -13.00     | -35.48     | 7.98   | Peak   | Vertical  |



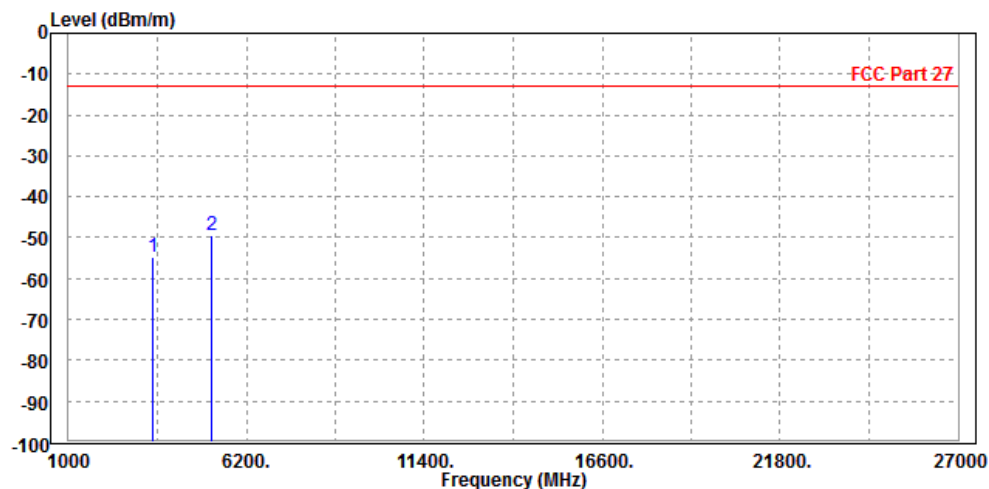


Test Report No.: RF180227W007-5

CHANNEL BANDWIDTH: 5MHz / QPSK

|                                                     |                  |                 |                    |
|-----------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                                | TX channel 20175 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                           | Star Le          |                 |                    |
| 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    | 3444.000 | -54.67 | -56.62     | -13.00     | -41.67     | 1.95   | Peak   | Horizontal |
| 2 PP | 5197.000 | -49.55 | -58.16     | -13.00     | -36.55     | 8.61   | Peak   | Horizontal |

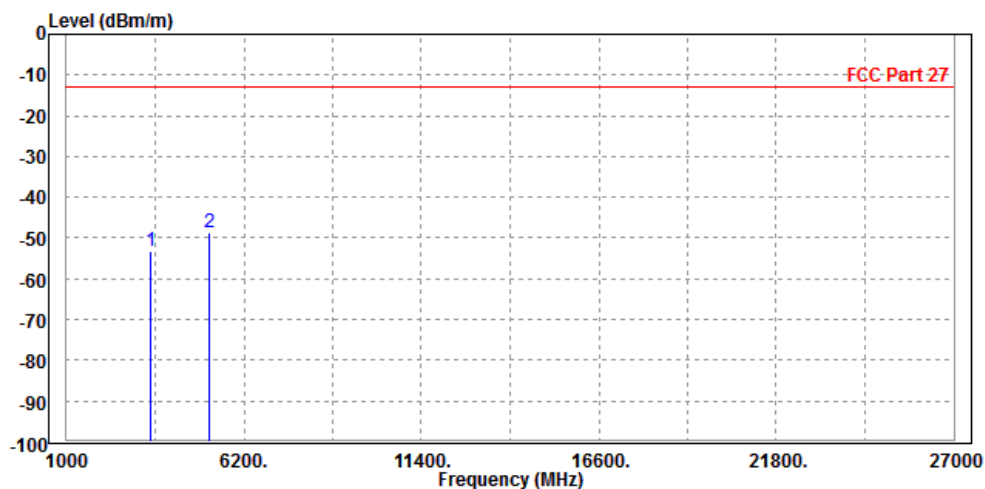




Test Report No.: RF180227W007-5

|                                                   |                  |                 |                    |
|---------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                              | TX channel 20175 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                         | Star Le          |                 |                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                  |                 |                    |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|----------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 3444.000 | -53.14 | -55.64     | -13.00     | -40.14     | 2.50   | Peak   | Vertical  |
| 2 PP | 5197.000 | -48.70 | -56.68     | -13.00     | -35.70     | 7.98   | Peak   | Vertical  |





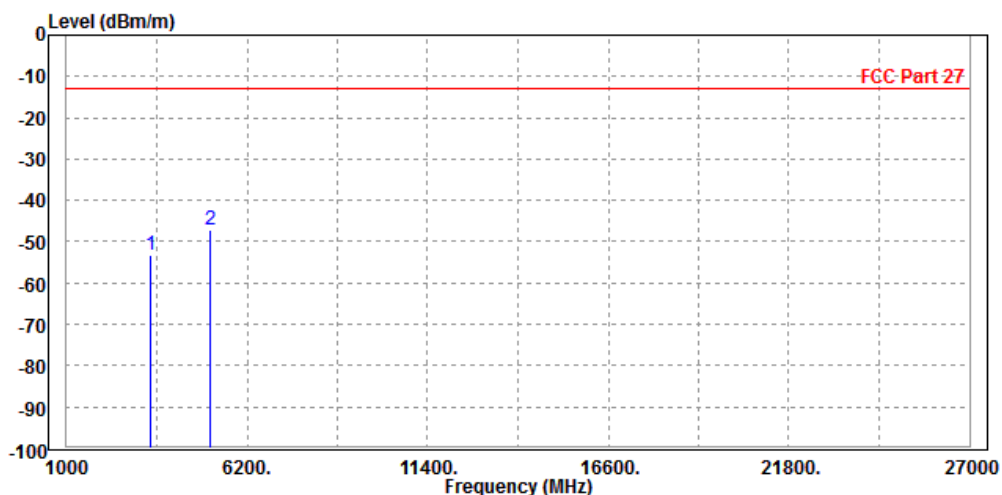
Test Report No.: RF180227W007-5

CHANNEL BANDWIDTH: 10MHz / QPSK

CH 20000

|                                                     |                  |                 |                    |
|-----------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                                | TX channel 20000 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                           | Star Le          |                 |                    |
| 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    | 3422.000 | -53.42 | -55.89     | -13.00     | -40.42     | 2.47   | Peak   | Vertical  |
| 2 PP | 5134.000 | -47.16 | -55.15     | -13.00     | -34.16     | 7.99   | Peak   | Vertical  |

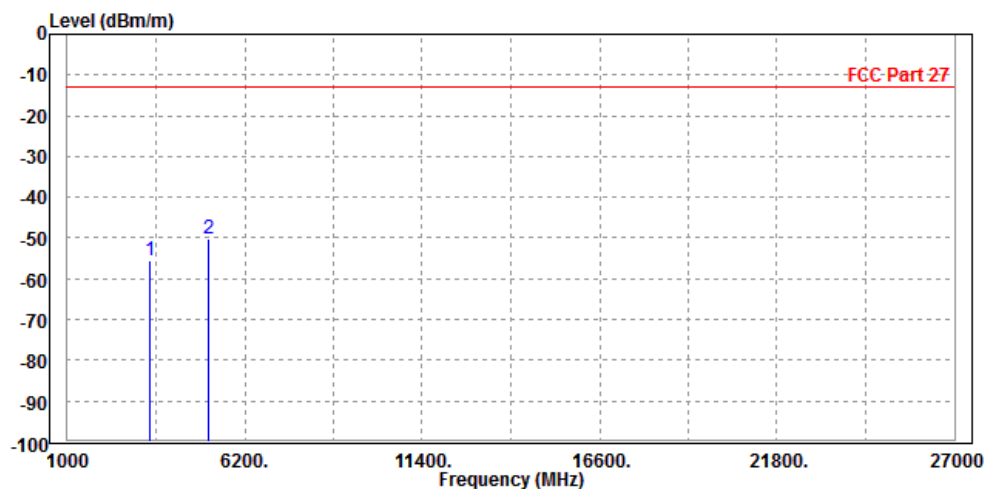




Test Report No.: RF180227W007-5

|                                                   |                  |                 |                    |
|---------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                              | TX channel 20000 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                         | Star Le          |                 |                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                  |                 |                    |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|----------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 3422.000 | -55.42 | -57.89     | -13.00     | -42.42     | 2.47   | Peak   | Vertical  |
| 2 PP | 5134.000 | -50.16 | -58.15     | -13.00     | -37.16     | 7.99   | Peak   | Vertical  |



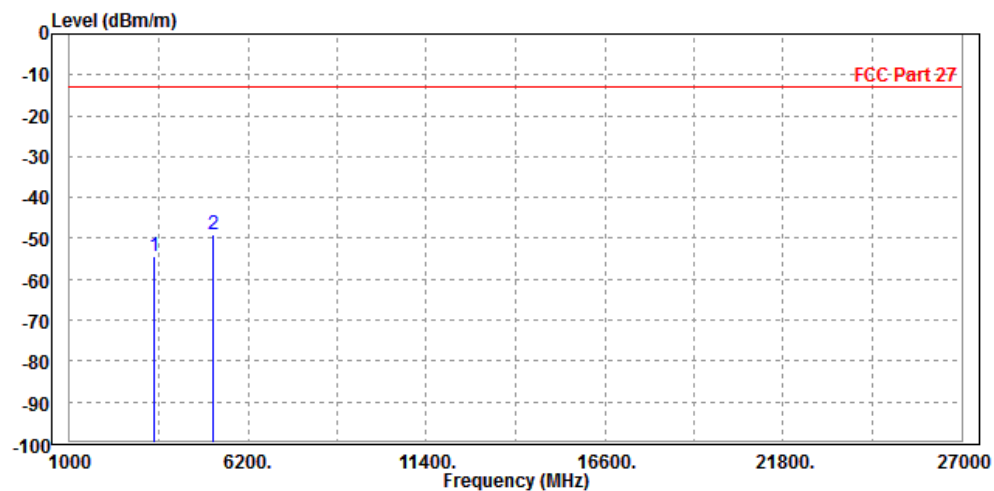


Test Report No.: RF180227W007-5

CH 20175

|                                                     |                  |                 |                    |
|-----------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                                | TX channel 20175 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                           | Star Le          |                 |                    |
| 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    | 3444.000 | -54.32 | -56.27     | -13.00     | -41.32     | 1.95   | Peak   | Horizontal |
| 2 PP | 5197.000 | -49.04 | -57.65     | -13.00     | -36.04     | 8.61   | Peak   | Horizontal |

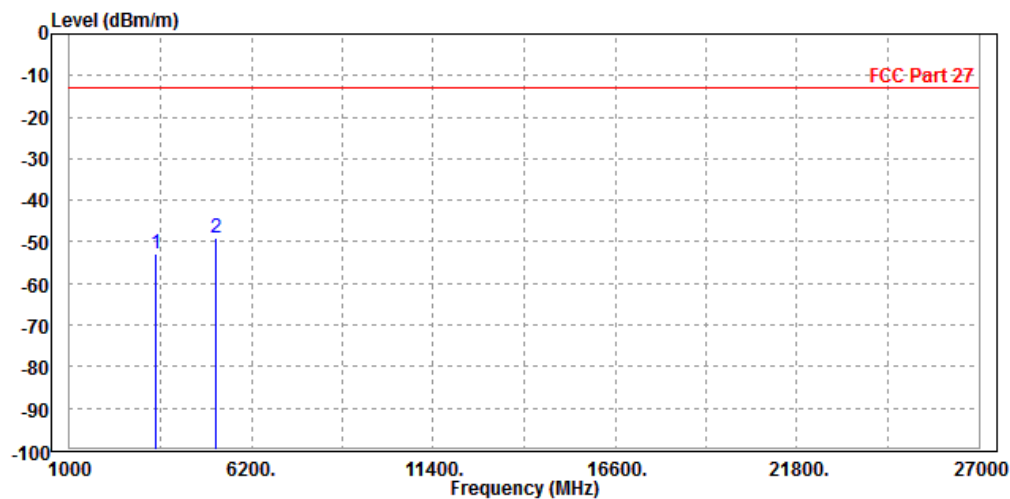




Test Report No.: RF180227W007-5

|                                                   |                  |                 |                    |
|---------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                              | TX channel 20175 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                         | Star Le          |                 |                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                  |                 |                    |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|----------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 3444.000 | -52.74 | -55.24     | -13.00     | -39.74     | 2.50   | Peak   | Vertical  |
| 2 PP | 5197.000 | -48.86 | -56.84     | -13.00     | -35.86     | 7.98   | Peak   | Vertical  |



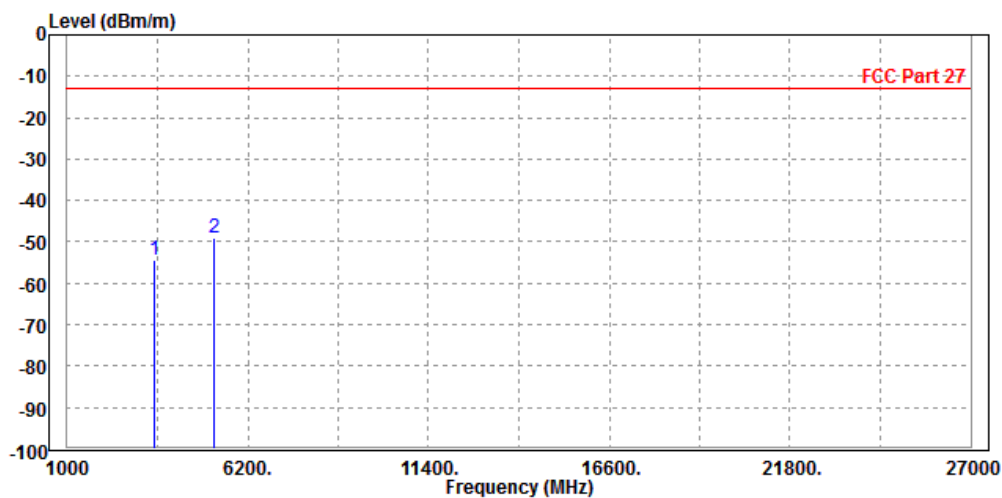


Test Report No.: RF180227W007-5

CH 20350

|                                                     |                  |                 |                    |
|-----------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                                | TX channel 20350 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                           | Star Le          |                 |                    |
| 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    | 3496.000 | -54.44 | -56.59     | -13.00     | -41.44     | 2.15   | Peak   | Horizontal |
| 2 PP | 5238.000 | -49.08 | -57.73     | -13.00     | -36.08     | 8.65   | Peak   | Horizontal |

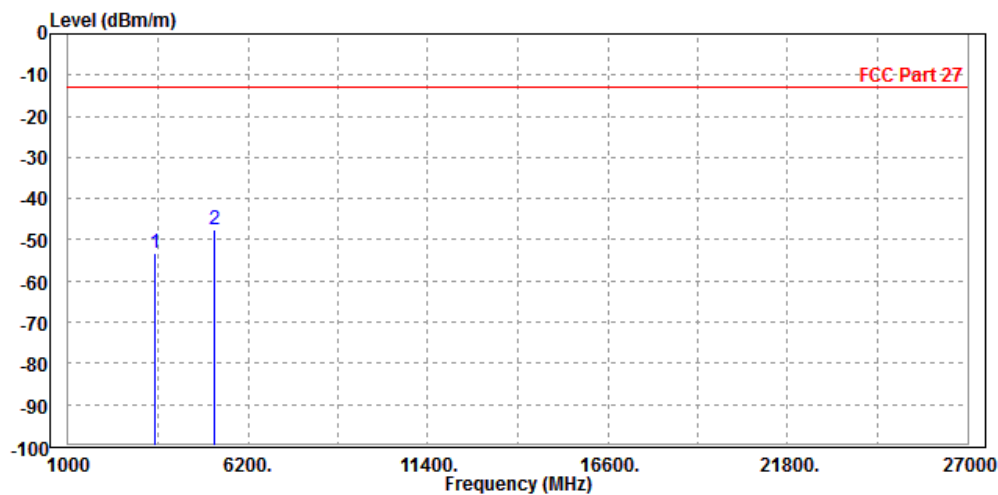




Test Report No.: RF180227W007-5

|                                                   |                  |                 |                    |
|---------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                              | TX channel 20350 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                         | Star Le          |                 |                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                  |                 |                    |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|----------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 3496.000 | -53.19 | -55.75     | -13.00     | -40.19     | 2.56   | Peak   | Vertical  |
| 2 PP | 5238.000 | -47.71 | -55.69     | -13.00     | -34.71     | 7.98   | Peak   | Vertical  |



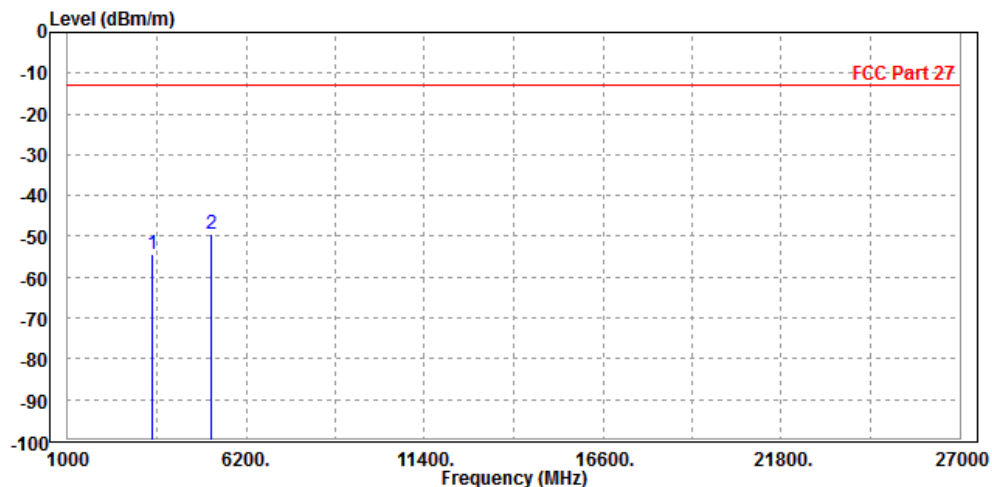


Test Report No.: RF180227W007-5

CHANNEL BANDWIDTH: 15MHz / QPSK

|                                                     |                  |                 |                    |
|-----------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                                | TX channel 20175 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                           | Star Le          |                 |                    |
| 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    | 3444.000 | -54.47 | -56.42     | -13.00     | -41.47     | 1.95   | Peak   | Horizontal |
| 2 PP | 5197.000 | -49.42 | -58.03     | -13.00     | -36.42     | 8.61   | Peak   | Horizontal |

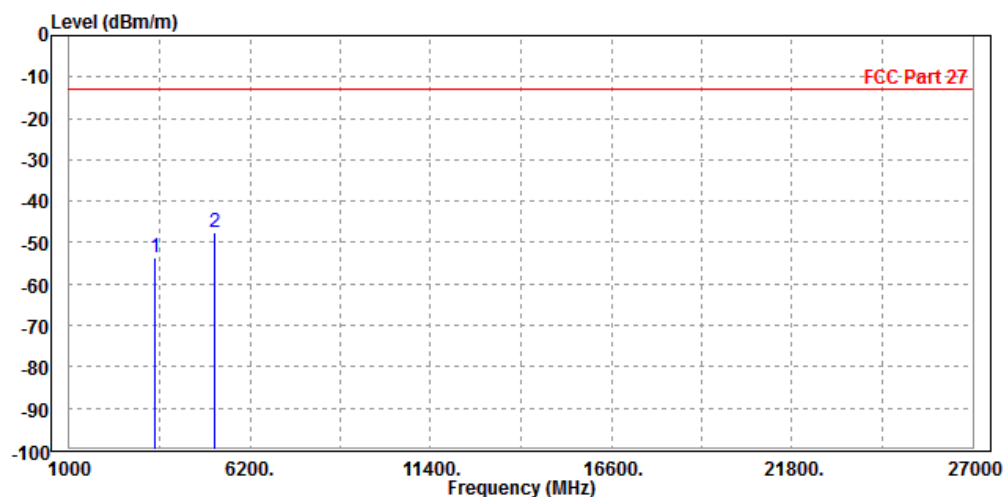




Test Report No.: RF180227W007-5

|                                                   |                  |                 |                    |
|---------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                              | TX channel 20175 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                         | Star Le          |                 |                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                  |                 |                    |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|----------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 3444.000 | -53.69 | -56.19     | -13.00     | -40.69     | 2.50   | Peak   | Vertical  |
| 2 PP | 5197.000 | -47.71 | -55.69     | -13.00     | -34.71     | 7.98   | Peak   | Vertical  |



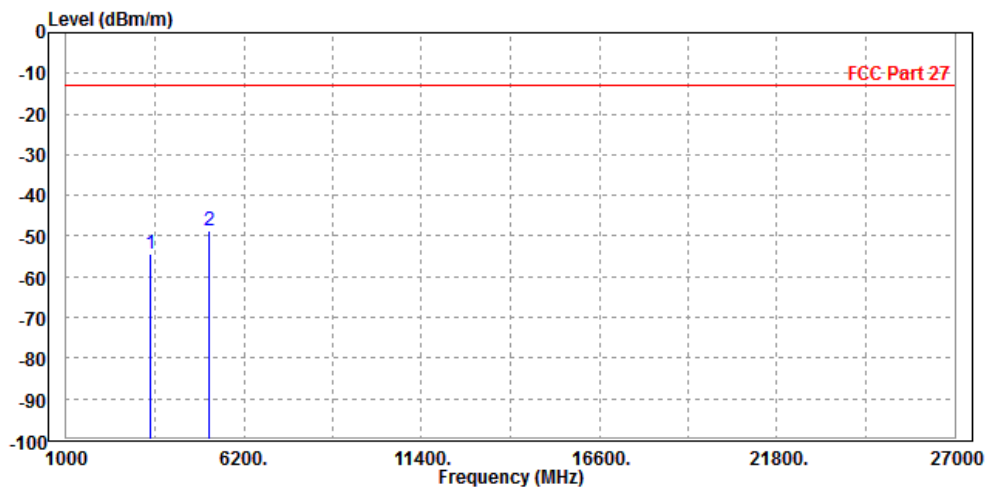


Test Report No.: RF180227W007-5

CHANNEL BANDWIDTH: 20MHz / QPSK

|                                                     |                  |                 |                    |
|-----------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                                | TX channel 20175 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                           | Star Le          |                 |                    |
| 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    | 3444.000 | -54.46 | -56.41     | -13.00     | -41.46     | 1.95   | Peak   | Horizontal |
| 2 PP | 5197.000 | -48.71 | -57.32     | -13.00     | -35.71     | 8.61   | Peak   | Horizontal |

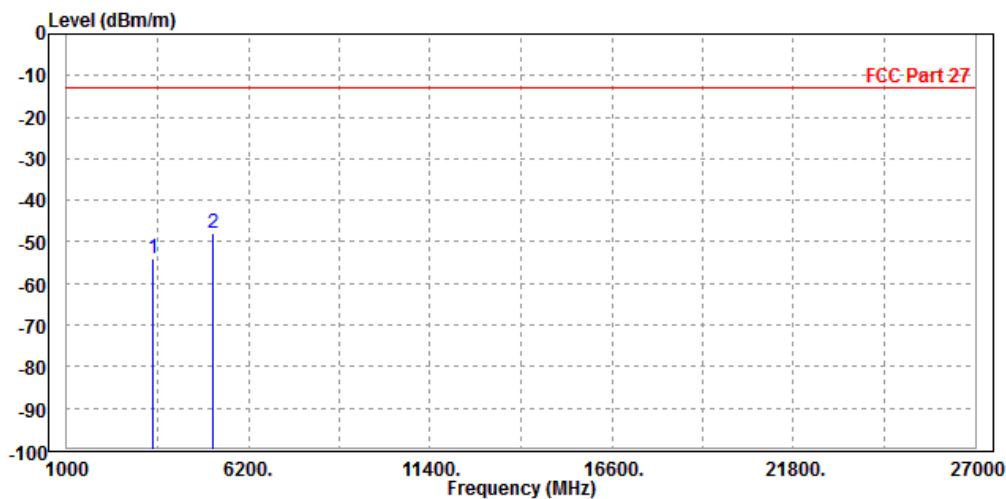




Test Report No.: RF180227W007-5

|                                                   |                  |                 |                    |
|---------------------------------------------------|------------------|-----------------|--------------------|
| MODE                                              | TX channel 20175 | FREQUENCY RANGE | Above 1000MHz      |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH  | INPUT POWER     | DC 5V from adapter |
| TESTED BY                                         | Star Le          |                 |                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                  |                 |                    |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|----------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 3444.000 | -53.81 | -56.31     | -13.00     | -40.81     | 2.50   | Peak   | Vertical  |
| 2 PP | 5197.000 | -47.91 | -55.89     | -13.00     | -34.91     | 7.98   | Peak   | Vertical  |





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#### 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.



Test Report No.: RF180227W007-5

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

No modifications were made to the EUT by the lab during the test.

---END---