

# FCC Radio Test Report

**FCC ID: 2A0UD-TP00098A**

This report concerns (check one): ☒ Original Grant ☐ Class II Change

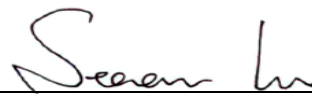
Project No. : 1711C206A  
Equipment : Tablet PC  
Test Model : TP00098A  
Series Model : N/A  
Applicant : Shenzhen Bitland Information Technology Co.,Ltd  
Address : 6F, #7 Building, XiLi Tongfuyu Industrial Town,  
Nanshan District, Shenzhen Guangdong 518055  
China

Date of Receipt : Nov. 24, 2017  
Date of Test : Nov. 24, 2017 ~ Feb. 13, 2018  
Issued Date : Feb. 14, 2018  
Tested by : BTL Inc.

Technical Engineer :

  
(Shawn Xiao)

Authorized Signatory :

  
(Steven Lu)

**B T L I N C .**

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**BTL** represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

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### **Limitation**

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

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## REPORT ISSUED HISTORY

| Issued No.           | Description     | Issued Date   |
|----------------------|-----------------|---------------|
| BTL-FCCP-3-1711C206A | Original Issue. | Feb. 14, 2018 |

## 1. CERTIFICATION

Equipment : Tablet PC  
Brand Name : Lenovo  
Test Model : TP00098A  
Series Model : N/A  
Applicant : Shenzhen Bitland Information Technology Co.,Ltd  
Manufacturer : Lenovo PC HK Limited  
Address : 23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong  
Factory : Hefei Bitland Information Technology Co.Ltd.  
Address : No.4088 JINXIU AVENUE, ECONOMIC&TECHNOLOGY DEVELOPMENT  
AREA, HEFEI, CHINA  
Date of Test : Nov. 24, 2017 ~ Feb. 13, 2018  
Test Sample : Engineering Sample  
Standard(s) : 47 CFR FCC Part 27  
47 CFR FCC Part 2 & ANSI/TIA-603-D-2010  
KDB 971168 D01 Power Meas License Digital Systems v03

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-3-1711C206A) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP according to the ISO-17025 quality assessment standard and technical standard(s).

**Test results included in this report is only for the WCDMA Band 4, LTE Band 4, 7, 12, 13 and 41 part.**

## 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

| FCC Part 27 & Part 2  |                              |          |           |
|-----------------------|------------------------------|----------|-----------|
| Standard(s) Section   | Test Item                    | Judgment | Tested By |
| 2.1046<br>27.50(d)(4) | Radiated power               | PASS     | Paul Li   |
| 2.1046<br>27.50(d)(4) | Conducted Output Power       | PASS     | Paul Li   |
| 2.1049<br>27.53(h)    | Occupied Bandwidth           | PASS     | Paul Li   |
| 2.1051<br>27.53(h)    | Conducted Spurious Emissions | PASS     | Paul Li   |
| 2.1053<br>27.53(h)    | Radiated Spurious Emissions  | PASS     | Paul Li   |
| 27.53(h)              | Band Edge Measurements       | PASS     | Paul Li   |
| 27.50                 | Peak To Average Ratio        | PASS     | Paul Li   |
| 2.1055<br>27.54       | Frequency Stability          | PASS     | Paul Li   |

## 2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

BTL's test firm number for FCC: 854385

BTL's designation number for FCC: CN5020

## 2.2 MEASUREMENT UNCERTAINTY

The measurement uncertainty figures shall be calculated according the methods described in the ETSI TR 100 028 and shall correspond to an expansion factor (coverage factor)  $k=1.96$  or  $k=2$  (which provide confidence levels of respectively 90% and 95.45% in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)). Measurement Uncertainty for a Level of Confidence of 95 %,  $U=2 \times U_c(y)$ .

The BTL measurement uncertainty as below table:

### A. Radiated Measurement :

| Test Site       | Method | Measurement Frequency Range | Ant.<br>H / V | U,(dB) |
|-----------------|--------|-----------------------------|---------------|--------|
| DG-CB03<br>(3m) | CISPR  | 9KHz ~ 30MHz                | V             | 3.79   |
|                 |        | 9KHz ~ 30MHz                | H             | 3.57   |
|                 |        | 30MHz ~ 200MHz              | V             | 3.82   |
|                 |        | 30MHz ~ 200MHz              | H             | 3.78   |
|                 |        | 200MHz ~ 1,000MHz           | V             | 4.10   |
|                 |        | 200MHz ~ 1,000MHz           | H             | 4.06   |

| Test Site       | Method | Measurement Frequency Range | Ant.<br>H / V | U,(dB) |
|-----------------|--------|-----------------------------|---------------|--------|
| DG-CB03<br>(3m) | CISPR  | 1GHz ~ 18GHz                | V             | 3.12   |
|                 |        | 1GHz ~ 18GHz                | H             | 3.68   |

| Test Site       | Method | Measurement Frequency Range | Ant.<br>H / V | U,(dB) |
|-----------------|--------|-----------------------------|---------------|--------|
| DG-CB03<br>(1m) | CISPR  | 18GHz ~ 40GHz               | V             | 4.15   |
|                 |        | 18GHz ~ 40GHz               | H             | 4.14   |

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

|                     |                                    |                                  |
|---------------------|------------------------------------|----------------------------------|
| Equipment           | Tablet PC                          |                                  |
| Brand Name          | Lenovo                             |                                  |
| Test Model          | TP00098A                           |                                  |
| Series Model        | N/A                                |                                  |
| Model Difference    | N/A                                |                                  |
| Modulation Type     | WCDMA                              | UL: BPSK<br>DL: QPSK             |
|                     | WCDMA (HSDPA/HSUPA)                | 16QAM                            |
|                     | LTE                                | UL: QPSK,16QAM<br>DL: QPSK,16QAM |
| Operation Frequency | WCDMA Band 4                       | 1712.4 ~1752.6MHz                |
|                     | LTE 4 (Channel Bandwidth: 1.4MHz)  | 1710.7 ~ 1754.3 MHz              |
|                     | LTE 4 (Channel Bandwidth: 3MHz)    | 1711.5 ~ 1753.5 MHz              |
|                     | LTE 4 (Channel Bandwidth: 5MHz)    | 1712.5 ~ 1752.5 MHz              |
|                     | LTE 4 (Channel Bandwidth: 10MHz)   | 1715.0 ~ 1750.0 MHz              |
|                     | LTE 4 (Channel Bandwidth: 15MHz)   | 1717.5 ~ 1747.5 MHz              |
|                     | LTE 4 (Channel Bandwidth: 20MHz)   | 1720.0 ~ 1745.0 MHz              |
|                     | LTE 7 (Channel Bandwidth: 5MHz)    | 2502.5 ~ 2567.5 MHz              |
|                     | LTE 7 (Channel Bandwidth: 10MHz)   | 2505.0 ~ 2565.0 MHz              |
|                     | LTE 7 (Channel Bandwidth: 15MHz)   | 2507.5 ~ 2562.5 MHz              |
|                     | LTE 7 (Channel Bandwidth: 20MHz)   | 2510.0 ~ 2560.0 MHz              |
|                     | LTE 12 (Channel Bandwidth: 1.4MHz) | 699.7 ~ 715.3MHz                 |
|                     | LTE 12 (Channel Bandwidth: 3MHz)   | 700.5 ~ 714.5MHz                 |
|                     | LTE 12 (Channel Bandwidth: 5MHz)   | 701.5 ~ 713.5MHz                 |
|                     | LTE 12 (Channel Bandwidth: 10MHz)  | 704.0 ~ 711.0MHz                 |
|                     | LTE 13 (Channel Bandwidth: 5MHz)   | 779.5 ~ 784.5 MHz                |
|                     | LTE 13 (Channel Bandwidth: 10MHz)  | 782.0 MHz                        |
|                     | LTE 41 (Channel Bandwidth: 5MHz)   | 2498.5 ~ 2687.5 MHz              |
|                     | LTE 41 (Channel Bandwidth: 10MHz)  | 2501.0 ~ 2685.0 MHz              |
|                     | LTE 41 (Channel Bandwidth: 15MHz)  | 2503.5 ~ 2682.5 MHz              |
|                     | LTE 41 (Channel Bandwidth: 20MHz)  | 2506.0 ~ 2680.0 MHz              |

|                 |                                    |       |       |     |
|-----------------|------------------------------------|-------|-------|-----|
| Max. EIRP Power | WCDMA Band 4(WCDMA)                | BPSK  | 26.60 | dBm |
|                 | WCDMA Band 4(HSDPA)                | BPSK  | 25.52 | dBm |
|                 | WCDMA Band 4(HSUPA)                | BPSK  | 25.62 | dBm |
|                 | LTE 4 (Channel Bandwidth: 1.4MHz)  | QPSK  | 26.13 | dBm |
|                 |                                    | 16QAM | 25.44 | dBm |
|                 | LTE 4 (Channel Bandwidth: 3MHz)    | QPSK  | 26.22 | dBm |
|                 |                                    | 16QAM | 25.46 | dBm |
|                 | LTE 4 (Channel Bandwidth: 5MHz)    | QPSK  | 26.27 | dBm |
|                 |                                    | 16QAM | 25.49 | dBm |
|                 | LTE 4 (Channel Bandwidth: 10MHz)   | QPSK  | 26.11 | dBm |
|                 |                                    | 16QAM | 25.35 | dBm |
|                 | LTE 4 (Channel Bandwidth: 15MHz)   | QPSK  | 26.01 | dBm |
|                 |                                    | 16QAM | 25.36 | dBm |
| Max. EIRP Power | LTE 4 (Channel Bandwidth: 20MHz)   | QPSK  | 26.08 | dBm |
|                 |                                    | 16QAM | 25.76 | dBm |
|                 | LTE 7 (Channel Bandwidth: 5MHz)    | QPSK  | 24.83 | dBm |
|                 |                                    | 16QAM | 24.45 | dBm |
|                 | LTE 7 (Channel Bandwidth: 10MHz)   | QPSK  | 24.73 | dBm |
|                 |                                    | 16QAM | 24.14 | dBm |
| Max. ERP Power  | LTE 7 (Channel Bandwidth: 15MHz)   | QPSK  | 24.66 | dBm |
|                 |                                    | 16QAM | 24.03 | dBm |
|                 | LTE 7 (Channel Bandwidth: 20MHz)   | QPSK  | 24.86 | dBm |
|                 |                                    | 16QAM | 24.73 | dBm |
|                 | LTE 12 (Channel Bandwidth: 1.4MHz) | QPSK  | 22.88 | dBm |
|                 |                                    | 16QAM | 22.04 | dBm |
|                 | LTE 12 (Channel Bandwidth: 3MHz)   | QPSK  | 22.99 | dBm |
|                 |                                    | 16QAM | 22.08 | dBm |
|                 | LTE 12 (Channel Bandwidth: 5MHz)   | QPSK  | 22.94 | dBm |
|                 |                                    | 16QAM | 22.15 | dBm |
| Max. ERP Power  | LTE 12 (Channel Bandwidth: 10MHz)  | QPSK  | 22.85 | dBm |
|                 |                                    | 16QAM | 22.05 | dBm |
|                 | LTE 13 (Channel Bandwidth: 5MHz)   | QPSK  | 22.57 | dBm |
|                 |                                    | 16QAM | 22.04 | dBm |
|                 | LTE 13 (Channel Bandwidth: 10MHz)  | QPSK  | 22.48 | dBm |
|                 |                                    | 16QAM | 21.63 | dBm |

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |       |     |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-----|
| Max. EIRP Power  | LTE 41 (Channel Bandwidth: 5MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | QPSK  | 25.11 | dBm |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 16QAM | 24.63 | dBm |
|                  | LTE 41 (Channel Bandwidth: 10MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | QPSK  | 25.07 | dBm |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 16QAM | 24.67 | dBm |
|                  | LTE 41 (Channel Bandwidth: 15MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | QPSK  | 25.21 | dBm |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 16QAM | 24.43 | dBm |
|                  | LTE 41 (Channel Bandwidth: 20MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | QPSK  | 24.98 | dBm |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 16QAM | 24.89 | dBm |
| Hardware Version | TBD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |     |
| Software Version | TBD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |     |
| IMEI No.         | 014583000483973                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |       |     |
| Power Source     | #1 DC voltage supplied from AC/DC adapter.<br>1) Manufacturer / Model: Liteon / ADLX45YLC2A (2pin)<br>2) Manufacturer / Model: Liteon / ADLX45YLC3A (3pin)<br>3) Manufacturer / Model: Liteon / ADLX65YLC3A (3pin)<br>4) Manufacturer / Model: Chicony / ADLX45YCC2A (2pin)<br>5) Manufacturer / Model: Chicony / ADLX45YCC3A (3pin)<br>6) Manufacturer / Model: Chicony / ADLX65YCC3A (3pin)<br>#2 Rechargeable Li-ion Battery supplied.<br>1) Manufacturer / Model: Simplo / L17M2P51<br>2) Manufacturer / Model: Simplo / L17M2P52<br>3) Manufacturer / Model: Celxpert / L17C2P51 |       |       |     |
| Power Rating     | #1 For adapter:<br>1) / 2) / 4) / 5):<br>I/P: 100-240V~1.3A 50-60Hz<br>O/P: 20V --- 2.25A/15V --- 3A/9V --- 2A/5V --- 2A Max 45W<br>3) / 6):<br>I/P: 100-240V~1.8A 50-60Hz<br>O/P: 20V --- 3.25A/15V --- 3A/9V --- 2A/5V --- 2A Max 65W<br>#2 For battery:<br>DC 7.68V, 5080mAh                                                                                                                                                                                                                                                                                                       |       |       |     |

Note:

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- Table for Filed Antenna:

| Ant. Part Number<br>(main & aux parts) | Type     | Antenna<br>Mfr. | Antenna Gain(dBi) |                |                |
|----------------------------------------|----------|-----------------|-------------------|----------------|----------------|
|                                        |          |                 | WCDMA<br>Band 4   | LTE<br>Band 4  | LTE<br>Band 7  |
| N19-0351-R0A<br>N19-0352-R0A           | Monopole | South<br>Star   | 2.90              | 2.90           | 3.10           |
|                                        |          |                 | 1.33              | 1.33           | 1.66           |
|                                        |          |                 | LTE<br>Band 12    | LTE<br>Band 13 | LTE<br>Band 41 |
|                                        |          |                 | 1.72<br>-0.26     | 1.72<br>-0.26  | 3.10<br>1.66   |

### 3.2 DESCRIPTION OF TEST MODES AND TEST CONDITION

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

| WCDMA BAND 4                 |                   |                  |                    |
|------------------------------|-------------------|------------------|--------------------|
| Test Item                    | Available Channel | Tested Channel   | Mode               |
| EIRP                         | 1312 to 1513      | 1312, 1413, 1513 | WCDMA,HSDPA, HSUPA |
| Frequency Stability          | 1312 to 1513      | 1413             | WCDMA              |
| Occupied Bandwidth           | 1312 to 1513      | 1312, 1413, 1513 | WCDMA,HSDPA, HSUPA |
| Band Edge                    | 1312 to 1513      | 1312, 1513       | WCDMA,HSDPA, HSUPA |
| Peak to Average Ratio        | 1312 to 1513      | 1312, 1413, 1513 | WCDMA,HSDPA, HSUPA |
| Conducuted Spurious Emission | 1312 to 1513      | 1413             | WCDMA,HSDPA, HSUPA |
| Radiated Spurious Emission   | 1312 to 1513      | 1312             | WCDMA,HSDPA, HSUPA |

| LTE BAND 4                                             |                   |                     |                   |             |                |
|--------------------------------------------------------|-------------------|---------------------|-------------------|-------------|----------------|
| Test Item                                              | Available Channel | Tested Channel      | Channel Bandwidth | Modulation  | Mode           |
| EIRP                                                   | 19957 to 20393    | 19957, 20175, 20393 | 1.4MHz            | QPSK, 16QAM | 1RB/3RB/6RB    |
|                                                        | 19965 to 20385    | 19965, 20175, 20385 | 3MHz              | QPSK, 16QAM | 1RB/8RB/15RB   |
|                                                        | 19975 to 20375    | 19975, 20175, 20375 | 5MHz              | QPSK, 16QAM | 1RB/12RB/25RB  |
|                                                        | 20000 to 20350    | 20000, 20175, 20350 | 10MHz             | QPSK, 16QAM | 1RB/25RB/50RB  |
|                                                        | 20025 to 20325    | 20025, 20175, 20325 | 15MHz             | QPSK, 16QAM | 1RB/36RB/75RB  |
|                                                        | 20050 to 20300    | 20050, 20175, 20300 | 20MHz             | QPSK, 16QAM | 1RB/50RB/100RB |
| Occupied Bandwidth                                     | 19957 to 20393    | 19957, 20175, 20393 | 1.4MHz            | QPSK, 16QAM | 6RB            |
|                                                        | 19965 to 20385    | 19965, 20175, 20385 | 3MHz              | QPSK, 16QAM | 15RB           |
|                                                        | 19975 to 20375    | 19975, 20175, 20375 | 5MHz              | QPSK, 16QAM | 25RB           |
|                                                        | 20000 to 20350    | 20000, 20175, 20350 | 10MHz             | QPSK, 16QAM | 50RB           |
|                                                        | 20025 to 20325    | 20025, 20175, 20325 | 15MHz             | QPSK, 16QAM | 75 RB          |
|                                                        | 20050 to 20300    | 20050, 20175, 20300 | 20MHz             | QPSK, 16QAM | 100RB          |
| Conducted Spurious Emission Radiated Spurious Emission | 19957 to 20393    | 20175               | 1.4MHz            | QPSK        | 1RB            |
|                                                        | 19965 to 20385    | 20175               | 3MHz              | QPSK        | 1RB            |
|                                                        | 19975 to 20375    | 20175               | 5MHz              | QPSK        | 1RB            |
|                                                        | 20000 to 20350    | 20175               | 10MHz             | QPSK        | 1RB            |
|                                                        | 20025 to 20325    | 20175               | 15MHz             | QPSK        | 1RB            |
|                                                        | 20050 to 20300    | 20175               | 20MHz             | QPSK        | 1RB            |
| Conducted Spurious Emission                            | 19957 to 20393    | 20175               | 1.4MHz            | QPSK        | 1RB            |
|                                                        | 20050 to 20300    | 20175               | 20MHz             | QPSK        | 1RB            |

| LTE BAND 4            |                   |                     |                   |             |           |
|-----------------------|-------------------|---------------------|-------------------|-------------|-----------|
| Test Item             | Available Channel | Tested Channel      | Channel Bandwidth | Modulation  | Mode      |
| Band Edge             | 19957 to 20393    | 19957               | 1.4MHz            | QPSK        | 1RB/6RB   |
|                       |                   | 20393               | 1.4MHz            | QPSK        |           |
|                       | 19965 to 20385    | 19965               | 3MHz              | QPSK        | 1RB/15RB  |
|                       |                   | 20385               | 3MHz              | QPSK        |           |
|                       | 19975 to 20375    | 19975               | 5MHz              | QPSK        | 1RB/25RB  |
|                       |                   | 20375               | 5MHz              | QPSK        |           |
|                       | 20000 to 20350    | 20000               | 10MHz             | QPSK        | 1RB/50RB  |
|                       |                   | 20350               | 10MHz             | QPSK        |           |
|                       | 20025 to 20325    | 20025               | 15MHz             | QPSK        | 1RB/75RB  |
|                       |                   | 20325               | 15MHz             | QPSK        |           |
|                       | 20050 to 20300    | 20050               | 20MHz             | QPSK        | 1RB/100RB |
|                       |                   | 20300               | 20MHz             | QPSK        |           |
| Peak To Average Ratio | 19957 to 20393    | 19957, 20175, 20393 | 1.4MHz            | QPSK, 16QAM | 1RB       |
|                       | 19965 to 20385    | 19965, 20175, 20385 | 3MHz              | QPSK, 16QAM | 1RB       |
|                       | 19975 to 20375    | 19975, 20175, 20375 | 5MHz              | QPSK, 16QAM | 1RB       |
|                       | 20000 to 20350    | 20000, 20175, 20350 | 10MHz             | QPSK, 16QAM | 1RB       |
|                       | 20025 to 20325    | 20025, 20175, 20325 | 15MHz             | QPSK, 16QAM | 1RB       |
|                       | 20050 to 20300    | 20050, 20175, 20300 | 20MHz             | QPSK, 16QAM | 1RB       |
| Frequency Stability   | 19957 to 20393    | 20175               | 1.4MHz            | QPSK        | 1RB       |
|                       | 19965 to 20385    | 20175               | 3MHz              | QPSK        | 1RB       |
|                       | 19975 to 20375    | 20175               | 5MHz              | QPSK        | 1RB       |
|                       | 20000 to 20350    | 20175               | 10MHz             | QPSK        | 1RB       |
|                       | 20025 to 20325    | 20175               | 15MHz             | QPSK        | 1RB       |
|                       | 20050 to 20300    | 20175               | 20MHz             | QPSK        | 1RB       |

| LTE BAND 7                  |                   |                     |                   |             |                |
|-----------------------------|-------------------|---------------------|-------------------|-------------|----------------|
| Test Item                   | Available Channel | Tested Channel      | Channel Bandwidth | Modulation  | Mode           |
| EIRP                        | 20775 to 21425    | 20775, 21100, 21425 | 5MHz              | QPSK, 16QAM | 1RB/12RB/25RB  |
|                             | 20800 to 21400    | 20800, 21100, 21400 | 10MHz             | QPSK, 16QAM | 1RB/25RB/50RB  |
|                             | 20825 to 21375    | 20825, 21100, 21375 | 15MHz             | QPSK, 16QAM | 1RB/36RB/75RB  |
|                             | 20850 to 21350    | 20850, 21100, 21350 | 20MHz             | QPSK, 16QAM | 1RB/50RB/100RB |
| Occupied Bandwidth          | 20775 to 21425    | 20775, 21100, 21425 | 5MHz              | QPSK, 16QAM | 25RB           |
|                             | 20800 to 21400    | 20800, 21100, 21400 | 10MHz             | QPSK, 16QAM | 50RB           |
|                             | 20825 to 21375    | 20825, 21100, 21375 | 15MHz             | QPSK, 16QAM | 75RB           |
|                             | 20850 to 21350    | 20850, 21100, 21350 | 20MHz             | QPSK, 16QAM | 100RB          |
| Conducted Spurious Emission | 20775 to 21425    | 21100               | 5MHz              | QPSK        | 1 RB           |
|                             | 20800 to 21400    | 21100               | 10MHz             | QPSK        | 1 RB           |
|                             | 20825 to 21375    | 21100               | 15MHz             | QPSK        | 1 RB           |
|                             | 20850 to 21350    | 21100               | 20MHz             | QPSK        | 1 RB           |
| Radiated Spurious Emission  | 20775 to 21425    | 21100               | 5MHz              | QPSK        | 1 RB           |
|                             | 20850 to 21350    | 21100               | 20MHz             | QPSK        | 1 RB           |
| Band Edge                   | 20775 to 21425    | 20775               | 5MHz              | QPSK        | 1RB/25RB       |
|                             |                   | 21425               | 5MHz              | QPSK        |                |
|                             | 20800 to 21400    | 20800               | 10MHz             | QPSK        | 1RB/50RB       |
|                             |                   | 21400               | 10MHz             | QPSK        |                |
|                             | 20825 to 21375    | 20825               | 15MHz             | QPSK        | 1RB/75RB       |
|                             |                   | 21375               | 15MHz             | QPSK        |                |
|                             | 20850 to 21350    | 20850               | 20MHz             | QPSK        | 1RB/100RB      |
|                             |                   | 21350               | 20MHz             | QPSK        |                |
| Peak To Average Ratio       | 20775 to 21425    | 20775, 21100, 21425 | 5MHz              | QPSK, 16QAM | 1RB            |
|                             | 20800 to 21400    | 20800, 21100, 21400 | 10MHz             | QPSK, 16QAM | 1RB            |
|                             | 20825 to 21375    | 20825, 21100, 21375 | 15MHz             | QPSK, 16QAM | 1RB            |
|                             | 20850 to 21350    | 20850, 21100, 21350 | 20MHz             | QPSK, 16QAM | 1RB            |
| Frequency Stability         | 20775 to 21425    | 21100               | 5MHz              | QPSK        | 1RB            |
|                             | 20800 to 21400    | 21100               | 10MHz             | QPSK        | 1RB            |
|                             | 20825 to 21375    | 21100               | 15MHz             | QPSK        | 1RB            |
|                             | 20850 to 21350    | 21100               | 20MHz             | QPSK        | 1RB            |

| LTE BAND 12                 |                   |                     |         |             |               |
|-----------------------------|-------------------|---------------------|---------|-------------|---------------|
| Test Item                   | Available Channel | Tested Channel      | Channel | Modulation  | Mode          |
| ERP                         | 23017 to 23173    | 23017, 23095, 23173 | 1.4MHz  | QPSK, 16QAM | 1RB/3RB/6RB   |
|                             | 23025 to 23165    | 23025, 23095, 23165 | 3MHz    | QPSK, 16QAM | 1RB/8RB/15RB  |
|                             | 23035 to 23155    | 23035, 23095, 23155 | 5MHz    | QPSK, 16QAM | 1RB/12RB/25RB |
|                             | 23060 to 23130    | 23060, 23095, 23130 | 10MHz   | QPSK, 16QAM | 1RB/25RB/50RB |
| Frequency Stability         | 23017 to 23173    | 23095               | 1.4MHz  | QPSK        | 1 RB          |
|                             | 23025 to 23165    | 23095               | 3MHz    | QPSK        | 1 RB          |
|                             | 23035 to 23155    | 23095               | 5MHz    | QPSK        | 1 RB          |
|                             | 23060 to 23130    | 23095               | 10MHz   | QPSK        | 1 RB          |
| Occupied Bandwidth          | 23017 to 23173    | 23017, 23095, 23173 | 1.4MHz  | QPSK, 16QAM | 6RB           |
|                             | 23025 to 23165    | 23025, 23095, 23165 | 3MHz    | QPSK, 16QAM | 15RB          |
|                             | 23035 to 23155    | 23035, 23095, 23155 | 5MHz    | QPSK, 16QAM | 25RB          |
|                             | 23060 to 23130    | 23060, 23095, 23130 | 10MHz   | QPSK, 16QAM | 50RB          |
| Peak to Average Ratio       | 23017 to 23173    | 23017, 23095, 23173 | 1.4MHz  | QPSK, 16QAM | 1 RB          |
|                             | 23025 to 23165    | 23025, 23095, 23165 | 3MHz    | QPSK, 16QAM | 1 RB          |
|                             | 23035 to 23155    | 23035, 23095, 23155 | 5MHz    | QPSK, 16QAM | 1 RB          |
|                             | 23060 to 23130    | 23060, 23095, 23130 | 10MHz   | QPSK, 16QAM | 1 RB          |
| Band Edge                   | 23017 to 23173    | 23017               | 1.4MHz  | QPSK        | 1RB/6RB       |
|                             |                   | 23173               | 1.4MHz  | QPSK        |               |
|                             | 23025 to 23165    | 23025               | 3MHz    | QPSK        | 1RB/15RB      |
|                             |                   | 23165               | 3MHz    | QPSK        |               |
|                             | 23035 to 23155    | 23035               | 5MHz    | QPSK        | 1RB/25RB      |
|                             |                   | 23155               | 5MHz    | QPSK        |               |
|                             | 23060 to 23130    | 23060               | 10MHz   | QPSK        | 1RB/50RB      |
|                             |                   | 23130               | 10MHz   | QPSK        |               |
| Conducted Spurious Emission | 23017 to 23173    | 23095               | 1.4MHz  | QPSK        | 1 RB          |
|                             | 23025 to 23165    | 23095               | 3MHz    | QPSK        | 1 RB          |
|                             | 23035 to 23155    | 23095               | 5MHz    | QPSK        | 1 RB          |
|                             | 23060 to 23130    | 23095               | 10MHz   | QPSK        | 1 RB          |
| Radiated Spurious Emission  | 23017 to 23173    | 23095               | 1.4MHz  | QPSK        | 1 RB          |
|                             | 23060 to 23130    | 23095               | 10MHz   | QPSK        | 1 RB          |

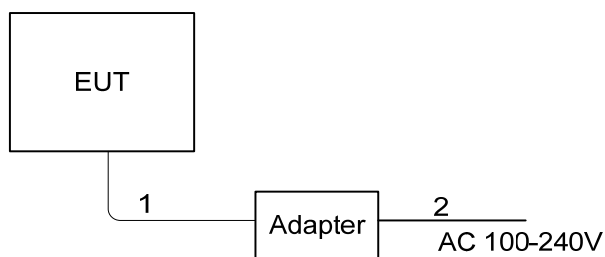
| LTE BAND 13                 |                   |                     |                   |             |               |
|-----------------------------|-------------------|---------------------|-------------------|-------------|---------------|
| Test Item                   | Available Channel | Tested Channel      | Channel Bandwidth | Modulation  | Mode          |
| ERP                         | 779.5 to 784.5    | 23205, 23230, 23255 | 5MHz              | QPSK, 16QAM | 1RB/12RB/25RB |
|                             | 782               | 23230               | 10MHz             | QPSK, 16QAM | 1RB/25RB/50RB |
| Occupied Bandwidth          | 779.5 to 784.5    | 23205, 23230, 23255 | 5MHz              | QPSK, 16QAM | 25RB          |
|                             | 782               | 23230               | 10MHz             | QPSK, 16QAM | 50RB          |
| Conducted Spurious Emission | 779.5 to 784.5    | 23230               | 5MHz              | QPSK        | 1 RB          |
|                             | 782               | 23230               | 10MHz             | QPSK        | 1 RB          |
| Radiated Spurious Emission  | 779.5 to 784.5    | 23230               | 5MHz              | QPSK        | 1 RB          |
|                             | 782               | 23230               | 10MHz             | QPSK        | 1 RB          |
| Band Edge                   | 779.5 to 784.5    | 23230               | 5MHz              | QPSK        | 1RB/25RB      |
|                             |                   | 23230               | 5MHz              | QPSK        |               |
|                             | 782               | 23230               | 10MHz             | QPSK        | 1RB/50RB      |
|                             |                   | 23230               | 10MHz             | QPSK        |               |
| Peak To Average Ratio       | 779.5 to 784.5    | 23205, 23230, 23255 | 5MHz              | QPSK, 16QAM | 1 RB          |
|                             | 782               | 23230               | 10MHz             | QPSK, 16QAM | 1 RB          |
| Frequency Stability         | 779.5 to 784.5    | 23230               | 5MHz              | QPSK        | 1 RB          |
|                             | 782               | 23230               | 10MHz             | QPSK        | 1 RB          |

| LTE BAND 41                 |                   |                     |                   |             |                |
|-----------------------------|-------------------|---------------------|-------------------|-------------|----------------|
| Test Item                   | Available Channel | Tested Channel      | Channel Bandwidth | Modulation  | Mode           |
| EIRP                        | 39675 to 41565    | 39675, 40620, 41565 | 5MHz              | QPSK, 16QAM | 1RB/12RB/25RB  |
|                             | 39700 to 41540    | 39700, 40620, 41540 | 10MHz             | QPSK, 16QAM | 1RB/25RB/50RB  |
|                             | 39725 to 41515    | 39725, 40620, 41515 | 15MHz             | QPSK, 16QAM | 1RB/36RB/75RB  |
|                             | 39750 to 41490    | 39750, 40620, 41490 | 20MHz             | QPSK, 16QAM | 1RB/50RB/100RB |
| Frequency Stability         | 39675 to 41565    | 40620               | 5MHz              | QPSK        | 1 RB           |
|                             | 39700 to 41540    | 40620               | 10MHz             | QPSK        | 1 RB           |
|                             | 39725 to 41515    | 40620               | 15MHz             | QPSK        | 1 RB           |
|                             | 39750 to 41490    | 40620               | 20MHz             | QPSK        | 1 RB           |
| Occupied Bandwidth          | 39675 to 41565    | 39675, 40620, 41565 | 5MHz              | QPSK, 16QAM | 25RB           |
|                             | 39700 to 41540    | 39700, 40620, 41540 | 10MHz             | QPSK, 16QAM | 50RB           |
|                             | 39725 to 41515    | 39725, 40620, 41515 | 15MHz             | QPSK, 16QAM | 75 RB          |
|                             | 39750 to 41490    | 39750, 40620, 41490 | 20MHz             | QPSK, 16QAM | 100RB          |
| Peak to Average Ratio       | 39675 to 41565    | 39675, 40620, 41565 | 5MHz              | QPSK, 16QAM | 1 RB           |
|                             | 39700 to 41540    | 39700, 40620, 41540 | 10MHz             | QPSK, 16QAM | 1 RB           |
|                             | 39725 to 41515    | 39725, 40620, 41515 | 15MHz             | QPSK, 16QAM | 1 RB           |
|                             | 39750 to 41490    | 39750, 40620, 41490 | 20MHz             | QPSK, 16QAM | 1 RB           |
| Band Edge                   | 39675 to 41565    | 39675, 41565        | 5MHz              | QPSK, 16QAM | 1RB/25RB       |
|                             | 39700 to 41540    | 39700, 41540        | 10MHz             | QPSK, 16QAM | 1RB/50RB       |
|                             | 39725 to 41515    | 39725, 41515        | 15MHz             | QPSK, 16QAM | 1RB/75RB       |
|                             | 39750 to 41490    | 39750, 41490        | 20MHz             | QPSK, 16QAM | 1RB/100RB      |
| Conducted Spurious Emission | 39675 to 41565    | 40620               | 5MHz              | QPSK        | 1 RB           |
|                             | 39750 to 41490    | 40620               | 20MHz             | QPSK        | 1 RB           |
| Radiated Spurious Emission  | 39675 to 41565    | 40620               | 5MHz              | QPSK        | 1 RB           |
|                             | 39750 to 41490    | 40620               | 20MHz             | QPSK        | 1 RB           |

### EUT TEST CONDITIONS:

| Test Item                   | Environmental Conditions | Test Voltage   |
|-----------------------------|--------------------------|----------------|
| EIRP                        | 24°C, 63%RH              | DC 7.68V       |
| Conducted Output Power      | 25°C, 65%RH              | DC 7.68V       |
| Occupied Bandwidth          | 25°C, 65%RH              | DC 7.68V       |
| Conducted Spurious Emission | 25°C, 65%RH              | DC 7.68V       |
| Radiated Spurious Emission  | 25°C, 60%RH              | AC 120V/60Hz   |
| Band Edge                   | 25°C, 65%RH              | DC 7.68V       |
| Peak to Average Ratio       | 25°C, 65%RH              | DC 7.68V       |
| Frequency Stability         | Normal Extreme           | Normal Extreme |

### 3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



### 3.4 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.

| Item | Equipment | Mfr/Brand | Model/Type No. | FCC ID | Series No. |
|------|-----------|-----------|----------------|--------|------------|
| -    | -         | -         | -              | -      | -          |

| Item | Shielded Type | Ferrite Core | Length | Note     |
|------|---------------|--------------|--------|----------|
| 1    | NO            | NO           | 1.6m   | DC Cable |
| 2    | NO            | NO           | 1.0m   | AC Cable |

## 4. TEST RESULT

### 4.1 OUTPUT POWER MEASUREMENT

#### 4.1.1 LIMIT

Mobile / Portable station are limited to 1 watts e.i.r.p. (LTE 4)

Mobile / Portable station are limited to 2 watts e.i.r.p. (LTE 7 and LTE 41)

Mobile / Portable station are limited to 3 watts e.i.r.p. (LTE 12 and LTE 13)

#### 4.1.2 TEST PROCEDURE

##### EIRP/ERP:

EIRP= Conducted Power +Antenan gain

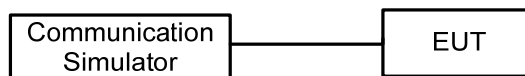
ERP power=EIPR power-2.15dBi.

##### Conducted Power:

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

#### 4.1.3 TESTSETUP LAYOUT

##### Conducted Power Measurement



#### 4.1.4 TEST DEVIATION

No deviation

#### 4.1.5 TEST RESULTS

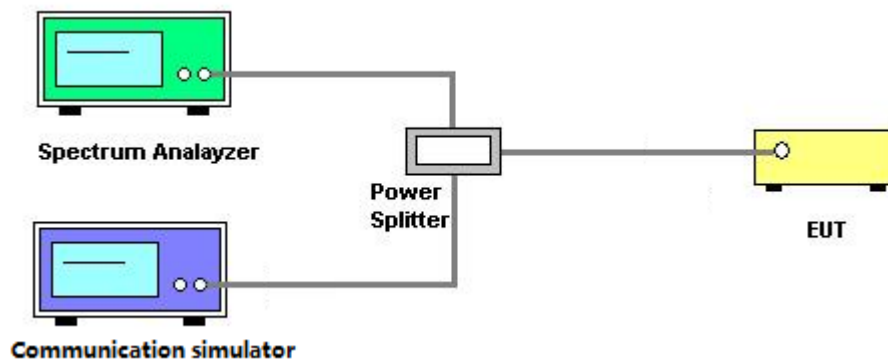
Please refer to the Appendix A.

## 4.2 OCCUPIED BANDWIDTH MEASUREMENT

### 4.2.1 TEST PROCEDURE

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth and 26dB bandwidth.

### 4.2.2 TEST SETUP LAYOUT



### 4.2.3 TEST DEVIATION

No deviation

### 4.2.4 TEST RESULTS

Please refer to the Appendix B.

### 4.3 CONDUCTED EMISSIONS MEASUREMENT

#### 4.3.1 LIMIT

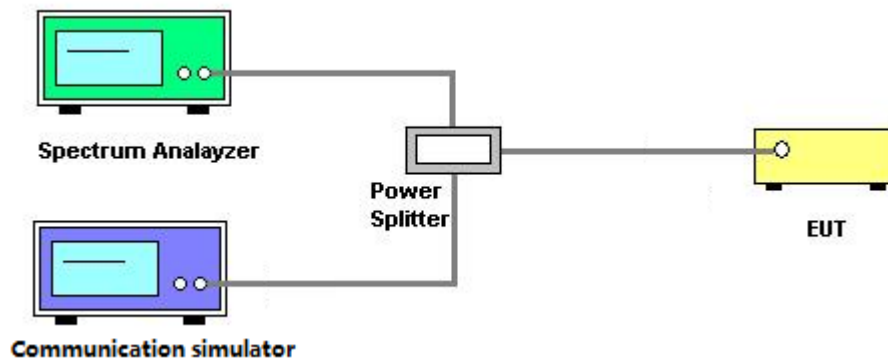
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to -13dBm. (LTE 4,12,13)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $55 + 10 \log(P)$  dB. The emission limit equal to -25dBm. (LTE 7, 41)

#### 4.3.2 TEST PROCEDURES

1. The testing follows FCC KDB 971168 v03 Section 6.0.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured. Set  $RBW \geq 1\%$  EBW in the 1MHz band immediately outside and adjacent to the band edge.
4. Set spectrum analyzer with RMS detector.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

#### 4.3.3 TESTSETUP LAYOUT



#### 4.3.4 TESTDEVIATION

No deviation

#### 4.3.5 TEST RESULTS

Please refer to the Appendix C.

## 4.4 RADIATED EMISSIONS MEASUREMENT

### 4.4.1 LIMIT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to -13dBm. (LTE 4,12,13)

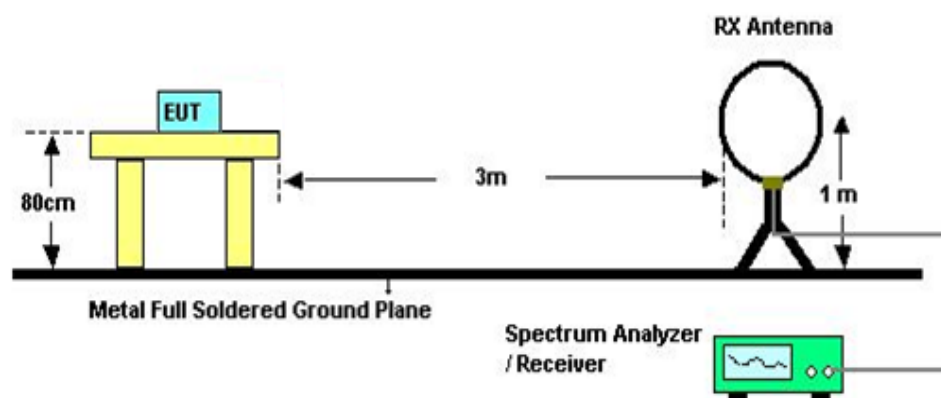
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $55 + 10 \log(P)$  dB. The emission limit equal to -25dBm. (LTE 7, 41)

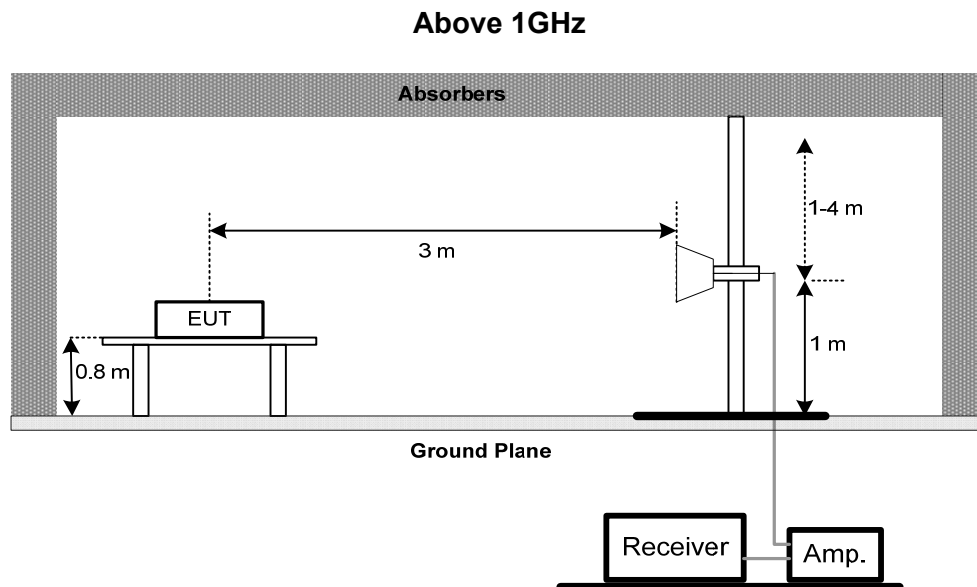
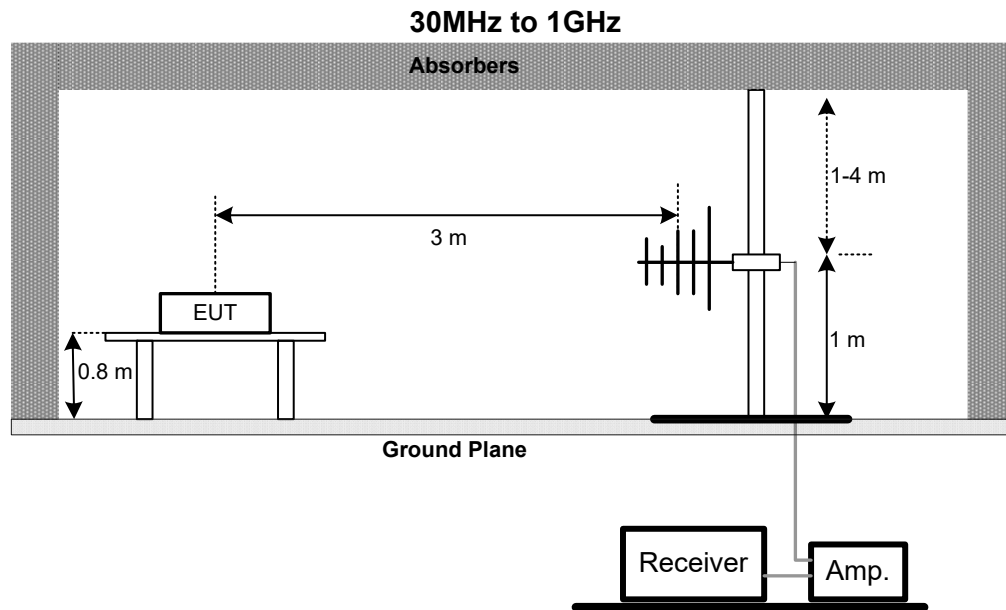
### 4.4.2 TEST PROCEDURES

1. 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.
2. 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
3. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
4. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.
5. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

### 4.4.3 TESTSETUP LAYOUT

Below 30MHz





#### 4.4.4 TESTDEVIATION

No deviation

#### 4.4.5 TEST RESULTS (9KHZ TO 30MHZ)

Please refer to the Appendix D.

#### 4.4.6 TEST RESULTS (30MHZ TO 1000MHZ)

Please refer to the Appendix E.

#### 4.4.7 TEST RESULTS (ABOVE 1000MHZ)

Please refer to the Appendix F.

Note: for band 13 1559-1610MHz, the test results of radiated emission meet the limit -40 dBm.

## 4.5 BAND EDGE MEASUREMENT

### 4.5.1 LIMIT

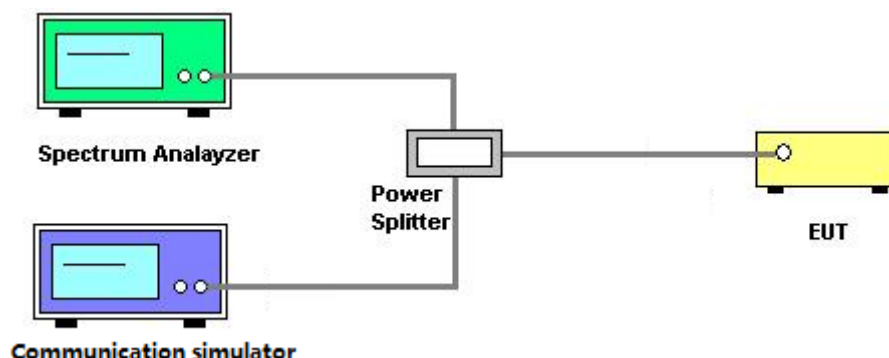
The power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43 + 10 \log (P)$  dB. Compliance with this provision is based on the use of measurement instrumentation 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. (LTE 4,12,13)

For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. (LTE 7, 41)

### 4.5.2 TEST PROCEDURES

1. All measurements were done at low and high operational frequency range.
2. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 13kHz and VB of the spectrum is 51kHz (LTE Bandwidth 1.4MHz).
3. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 30kHz and VB of the spectrum is 100kHz (LTE Bandwidth 3MHz).
4. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (LTE Bandwidth 5MHz/10MHz).
5. Record the max trace plot into the test report.

### 4.5.3 TESTSETUP LAYOUT



### 4.5.4 TESTDEVIATION

No deviation

### 4.5.5 TEST RESULTS

Please refer to the Appendix G.

## 4.6 PEAK TO AVERAGE RATIO MEASUREMENT

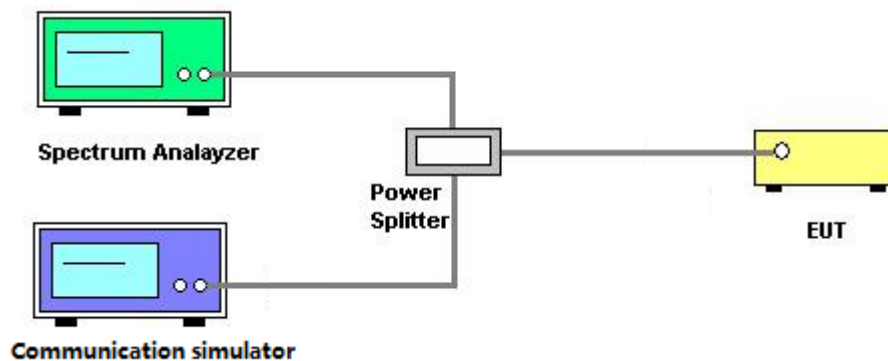
### 4.6.1 LIMIT

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.

### 4.6.2 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%.

### 4.6.3 TESTSETUP LAYOUT



### 4.6.4 TESTDEVIATION

No deviation

### 4.6.5 TEST RESULTS

Please refer to the Appendix H

## 4.7 FREQUENCY STABILITY MEASUREMENT

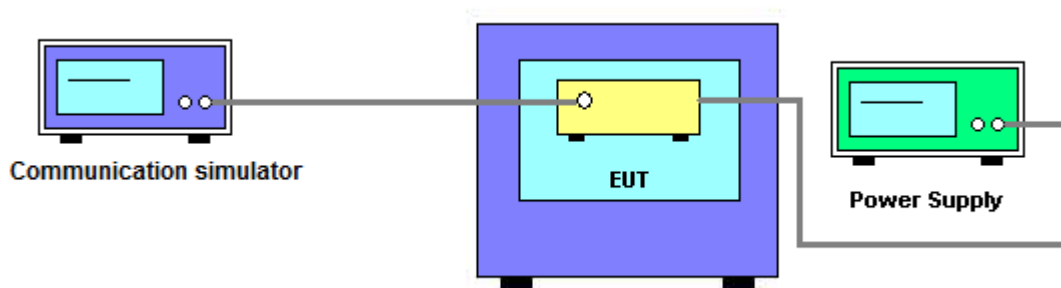
### 4.7.1 LIMIT

1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

### 4.7.2 TEST PROCEDURES

1. 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.
2. 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.
3. 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.
4. The frequency error was recorded frequency error from the communication simulator.

### 4.7.3 TESTSETUP LAYOUT



### 4.7.4 TESTDEVIATION

No deviation

### 4.7.5 TEST RESULTS

Please refer to the Appendix I

## 5. LIST OF MEASUREMENT EQUIPMENTS

| Radiated Emission & ERP or EIRP Measurement |                                     |                             |                                         |               |                  |
|---------------------------------------------|-------------------------------------|-----------------------------|-----------------------------------------|---------------|------------------|
| Item                                        | Kind of Equipment                   | Manufacturer                | Type No.                                | Serial No.    | Calibrated until |
| 1                                           | Antenna                             | Schwarbeck                  | VULB9160                                | 9160-3232     | Mar. 26, 2018    |
| 2                                           | Double Ridged Guide Antenna         | ETS                         | 3115                                    | 75789         | Mar. 26, 2018    |
| 3                                           | Broad-Band Horn Antenna             | Schwarzbeck                 | BBHA 9170                               | 9170319       | Apr. 22, 2018    |
| 4                                           | Amplifier                           | Agilent                     | 8449B                                   | 3008A02274    | Mar. 09, 2018    |
| 5                                           | Amplifier                           | HP                          | 8447D                                   | 2944A09673    | Oct. 19, 2018    |
| 6                                           | HighPass Filter                     | Wairwright Instruments Gmbh | WHK 1.5/15G-10ST                        | 11            | Mar. 09, 2018    |
| 7                                           | Band Reject Filter                  | Wairwright Instruments Gmbh | WRCG<br>1710/1785-1690/180<br>5-60/12SS | 38            | Feb. 22, 2018    |
| 8                                           | Band Reject Filter                  | Wairwright Instruments Gmbh | WRCG<br>824/849-810/863-60/<br>9SS      | 7             | Feb. 22, 2018    |
| 9                                           | Band Reject Filter                  | Wairwright Instruments Gmbh | WRCG<br>880/915-860/935-60/<br>9SS      | 14            | Feb. 22, 2018    |
| 10                                          | Band Reject Filter                  | Wairwright Instruments Gmbh | WRCG<br>1850/1910-1830/193<br>0-60/10SS | 17            | Feb. 22, 2018    |
| 11                                          | HighPass Filter                     | Wairwright Instruments Gmbh | WHK3.1/18G-10SS                         | 24            | Mar. 09, 2018    |
| 12                                          | Wireless Communication Test SET     | Agilent                     | E5515C                                  | MY48364183    | Mar. 26, 2018    |
| 13                                          | Microwave Preamplifier With Adaptor | EMC INSTRUMENT              | EMC2654045                              | 980039 & HA01 | Mar. 26, 2018    |
| 14                                          | Receiver                            | Agilent                     | N9038A                                  | MY52130039    | Sep. 03, 2018    |
| 15                                          | wideband radio communication tester | R&S                         | CMW500                                  | 152372        | Mar. 26, 2018    |
| 16                                          | High pass filter                    | ZHPF-M1000-4000-1           | ZHPF-M3-12.75G-3869                     | B2015073763   | Aug. 03, 2018    |
| 17                                          | High pass filter                    | ZHPF-M3-12.75G-3869         | ZHPF-M1000-4000-1                       | B2015073762   | Aug. 03, 2018    |
| 18                                          | High pass filter                    | ZHPF-M6-18G-1727            | ZHPF-M6-186-1727                        | B2015073764   | Aug. 03, 2018    |
| 19                                          | Cable                               | emci                        | LMR-400(30MHz-1G Hz)(8m+5m)             | N/A           | Jun. 26, 2018    |
| 20                                          | Cable                               | emci                        | EMC104-SM-SM-12000(12m)                 | N/A           | Jul. 05, 2018    |
| 21                                          | Controller                          | ETS-Lindgren                | 2090                                    | N/A           | N/A              |
| 22                                          | Measurement Software                | Farad                       | EZ-EMC Ver.NB-03A1-01                   | N/A           | N/A              |

| Conducted Emission & Band Edge & Occupied Bandwidth Measurement |                                     |               |               |             |                  |
|-----------------------------------------------------------------|-------------------------------------|---------------|---------------|-------------|------------------|
| Item                                                            | Kind of Equipment                   | Manufacturer  | Type No.      | Serial No.  | Calibrated until |
| 1                                                               | Wireless Communication Test SET     | Agilent       | E5515C        | MY48364183  | Mar. 26, 2018    |
| 2                                                               | EXA Spectrum Analyzer               | Agilent       | N9010A        | MY50520044  | Mar. 26, 2018    |
| 3                                                               | POWER SPLITTER                      | Mini-Circuits | ZFRSC-123-S + | 331000910-1 | Feb. 25, 2018    |
| 4                                                               | wideband radio communication tester | R&S           | CMW500        | 152372      | Mar. 26, 2018    |
| 5                                                               | Cable                               | N/A           | RG316(0.3m)   | N/A         | Jul. 05, 2018    |

| Frequency Stability Measurement |                                     |               |               |             |                  |
|---------------------------------|-------------------------------------|---------------|---------------|-------------|------------------|
| Item                            | Kind of Equipment                   | Manufacturer  | Type No.      | Serial No.  | Calibrated until |
| 1                               | Wireless Communication Test SET     | Agilent       | E5515C        | MY48364183  | Mar. 26, 2018    |
| 2                               | DC power supply                     | GW Instek     | GPC-3030DN    | EK880675    | Oct. 12, 2018    |
| 3                               | POWER SPLITTER                      | Mini-Circuits | ZFRSC-123-S + | 331000910-1 | Feb. 25, 2018    |
| 4                               | wideband radio communication tester | R&S           | CMW500        | 152372      | Mar. 26, 2018    |
| 5                               | Const Temp,& Humidity Chamber       | Bell          | BTH-50C       | 20170306001 | Mar. 26, 2018    |
| 6                               | Cable                               | N/A           | RG316(0.3m)   | N/A         | Jul. 05, 2018    |

Remark: "N/A" denotes no model name, serial no. or calibration specified.  
All calibration period of equipment list is one year.

## 6. EUT TEST PHOTO

### Radiated Measurement Photos

9KHz to 30MHz



## Radiated Measurement Photos

30MHz to 1000MHz



## Radiated Measurement Photos

### Above 1000MHz



## APPENDIX A - OUTPUT POWER

### Conducted Power:

| Modulation | Band            | WCDMA IV   |            |            |
|------------|-----------------|------------|------------|------------|
|            | Tx Channel      | 1312 CH    | 1413 CH    | 1513 CH    |
|            | Rx Channel      | 1537 CH    | 1638 CH    | 1738 CH    |
|            | Frequency       | 1712.4 MHz | 1732.6 MHz | 1752.6 MHz |
| BPSK       | RMC 12.2K       | 23.67      | 23.56      | 23.53      |
|            | RMC 64K         | 23.66      | 23.58      | 23.55      |
|            | RMC 144K        | 23.70      | 23.56      | 23.50      |
|            | RMC 384K        | 23.69      | 23.55      | 23.52      |
| BPSK       | HSDPA Subtest-1 | 22.55      | 22.28      | 22.40      |
|            | HSDPA Subtest-2 | 22.62      | 22.31      | 22.43      |
|            | HSDPA Subtest-3 | 22.12      | 21.85      | 21.94      |
|            | HSDPA Subtest-4 | 22.11      | 21.87      | 21.97      |
| BPSK       | HSUPA Subtest-1 | 22.59      | 22.30      | 22.42      |
|            | HSUPA Subtest-2 | 22.17      | 21.94      | 21.91      |
|            | HSUPA Subtest-3 | 22.72      | 22.55      | 22.52      |
|            | HSUPA Subtest-4 | 22.68      | 22.50      | 22.45      |
|            | HSUPA Subtest-5 | 22.69      | 22.53      | 22.50      |

### Conducted Power:

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH     | Mid CH     | High CH    |
|---------------|------------|---------|-----------|------------|------------|------------|
|               |            |         |           | 19957 CH   | 20175 CH   | 20393 CH   |
|               |            |         |           | 1710.7 MHz | 1732.5 MHz | 1754.3 MHz |
| 4 / 1.4M      | QPSK       | 1       | 0         | 23.12      | 23.02      | 23.20      |
|               |            | 1       | 2         | 23.07      | 23.08      | 22.90      |
|               |            | 1       | 5         | 23.20      | 22.97      | 23.23      |
|               |            | 3       | 0         | 22.90      | 22.85      | 22.84      |
|               |            | 3       | 1         | 22.99      | 22.92      | 22.87      |
|               |            | 3       | 3         | 23.05      | 22.96      | 22.92      |
|               |            | 6       | 0         | 22.02      | 21.87      | 21.80      |
|               | 16QAM      | 1       | 0         | 22.36      | 22.42      | 21.92      |
|               |            | 1       | 2         | 22.37      | 22.42      | 22.11      |
|               |            | 1       | 5         | 22.54      | 22.23      | 21.99      |
|               |            | 3       | 0         | 22.10      | 22.01      | 21.92      |
|               |            | 3       | 1         | 22.23      | 22.06      | 21.97      |
|               |            | 3       | 3         | 22.34      | 22.13      | 21.99      |
|               |            | 6       | 0         | 21.14      | 20.78      | 20.97      |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH     | Mid CH     | High CH    |
|---------------|------------|---------|-----------|------------|------------|------------|
|               |            |         |           | 19965 CH   | 20175 CH   | 20385 CH   |
|               |            |         |           | 1711.5 MHz | 1732.5 MHz | 1753.5 MHz |
| 4 / 3M        | QPSK       | 1       | 0         | 23.13      | 23.19      | 22.94      |
|               |            | 1       | 7         | 23.18      | 23.11      | 22.88      |
|               |            | 1       | 14        | 23.32      | 23.14      | 22.94      |
|               |            | 8       | 0         | 22.09      | 21.93      | 21.83      |
|               |            | 8       | 3         | 22.11      | 21.87      | 21.86      |
|               |            | 8       | 7         | 22.06      | 21.93      | 21.85      |
|               |            | 15      | 0         | 22.11      | 21.92      | 21.86      |
|               | 16QAM      | 1       | 0         | 22.11      | 22.56      | 22.09      |
|               |            | 1       | 7         | 22.21      | 22.42      | 22.09      |
|               |            | 1       | 14        | 22.29      | 22.43      | 21.99      |
|               |            | 8       | 0         | 21.18      | 20.99      | 20.77      |
|               |            | 8       | 3         | 21.15      | 20.86      | 20.84      |
|               |            | 8       | 7         | 21.15      | 20.94      | 20.82      |
|               |            | 15      | 0         | 21.13      | 20.92      | 20.73      |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH     | Mid CH     | High CH    |
|---------------|------------|---------|-----------|------------|------------|------------|
|               |            |         |           | 19975 CH   | 20175 CH   | 20375 CH   |
|               |            |         |           | 1712.5 MHz | 1732.5 MHz | 1752.5 MHz |
| 4 / 5M        | QPSK       | 1       | 0         | 23.28      | 23.02      | 23.11      |
|               |            | 1       | 12        | 23.35      | 23.10      | 23.19      |
|               |            | 1       | 24        | 23.37      | 23.08      | 23.16      |
|               |            | 12      | 0         | 22.10      | 21.93      | 21.93      |
|               |            | 12      | 6         | 22.16      | 21.96      | 21.99      |
|               |            | 12      | 13        | 22.08      | 21.94      | 21.94      |
|               |            | 25      | 0         | 22.15      | 21.81      | 21.92      |
|               | 16QAM      | 1       | 0         | 22.31      | 22.56      | 22.06      |
|               |            | 1       | 12        | 22.48      | 22.53      | 22.24      |
|               |            | 1       | 24        | 22.42      | 22.59      | 22.13      |
|               |            | 12      | 0         | 21.13      | 21.07      | 20.96      |
|               |            | 12      | 6         | 21.20      | 21.06      | 20.98      |
|               |            | 12      | 13        | 21.14      | 21.06      | 20.94      |
|               |            | 25      | 0         | 21.13      | 20.84      | 20.83      |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH   | Mid CH     | High CH  |
|---------------|------------|---------|-----------|----------|------------|----------|
|               |            |         |           | 20000 CH | 20175 CH   | 20350 CH |
|               |            |         |           | 1715 MHz | 1732.5 MHz | 1750 MHz |
| 4 / 10M       | QPSK       | 1       | 0         | 23.10    | 23.21      | 22.96    |
|               |            | 1       | 24        | 23.18    | 23.09      | 22.86    |
|               |            | 1       | 49        | 23.16    | 23.06      | 22.83    |
|               |            | 25      | 0         | 22.10    | 21.97      | 21.89    |
|               |            | 25      | 12        | 22.11    | 21.89      | 21.80    |
|               |            | 25      | 25        | 22.10    | 21.91      | 21.83    |
|               |            | 50      | 0         | 22.12    | 21.90      | 21.77    |
|               | 16QAM      | 1       | 0         | 22.29    | 22.25      | 22.44    |
|               |            | 1       | 24        | 22.23    | 22.34      | 21.97    |
|               |            | 1       | 49        | 22.45    | 22.26      | 22.13    |
|               |            | 25      | 0         | 21.07    | 20.87      | 20.96    |
|               |            | 25      | 12        | 21.12    | 20.89      | 20.86    |
|               |            | 25      | 25        | 21.09    | 20.86      | 20.83    |
|               |            | 50      | 0         | 21.07    | 20.90      | 20.77    |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH     | Mid CH     | High CH    |
|---------------|------------|---------|-----------|------------|------------|------------|
|               |            |         |           | 20025 CH   | 20175 CH   | 20325 CH   |
|               |            |         |           | 1717.5 MHz | 1732.5 MHz | 1747.5 MHz |
| 4 / 15M       | QPSK       | 1       | 0         | 23.10      | 23.11      | 22.95      |
|               |            | 1       | 37        | 23.11      | 22.99      | 22.91      |
|               |            | 1       | 74        | 22.89      | 22.88      | 22.84      |
|               |            | 36      | 0         | 22.10      | 22.88      | 21.91      |
|               |            | 36      | 19        | 22.12      | 22.03      | 21.94      |
|               |            | 36      | 39        | 22.06      | 21.90      | 21.88      |
|               |            | 75      | 0         | 22.06      | 21.95      | 21.86      |
|               | 16QAM      | 1       | 0         | 22.11      | 22.32      | 22.46      |
|               |            | 1       | 37        | 22.18      | 22.26      | 22.45      |
|               |            | 1       | 74        | 21.96      | 22.19      | 22.33      |
|               |            | 36      | 0         | 21.06      | 21.97      | 20.89      |
|               |            | 36      | 19        | 21.08      | 21.01      | 20.85      |
|               |            | 36      | 39        | 20.98      | 20.88      | 20.79      |
|               |            | 75      | 0         | 21.05      | 20.92      | 20.81      |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH   | Mid CH     | High CH  |
|---------------|------------|---------|-----------|----------|------------|----------|
|               |            |         |           | 20050 CH | 20175 CH   | 20300 CH |
|               |            |         |           | 1720 MHz | 1732.5 MHz | 1745 MHz |
| 4 / 20M       | QPSK       | 1       | 0         | 23.10    | 22.88      | 22.93    |
|               |            | 1       | 50        | 23.18    | 22.12      | 23.00    |
|               |            | 1       | 99        | 23.06    | 22.75      | 22.74    |
|               |            | 50      | 0         | 21.99    | 22.06      | 21.88    |
|               |            | 50      | 25        | 22.13    | 22.02      | 21.94    |
|               |            | 50      | 50        | 22.12    | 21.90      | 21.83    |
|               |            | 100     | 0         | 22.02    | 21.90      | 21.89    |
|               | 16QAM      | 1       | 0         | 22.75    | 22.82      | 22.22    |
|               |            | 1       | 50        | 22.86    | 21.12      | 22.30    |
|               |            | 1       | 99        | 22.59    | 22.20      | 22.07    |
|               |            | 50      | 0         | 21.05    | 21.00      | 20.83    |
|               |            | 50      | 25        | 21.15    | 20.98      | 20.87    |
|               |            | 50      | 50        | 21.12    | 20.85      | 20.75    |
|               |            | 100     | 0         | 21.06    | 20.87      | 20.87    |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH     | Mid CH   | High CH    |
|---------------|------------|---------|-----------|------------|----------|------------|
|               |            |         |           | 20775 CH   | 21100 CH | 21425 CH   |
|               |            |         |           | 2502.5 MHz | 2535 MHz | 2567.5 MHz |
| 7 / 5M        | QPSK       | 1       | 0         | 21.45      | 21.70    | 21.31      |
|               |            | 1       | 12        | 21.60      | 21.73    | 21.40      |
|               |            | 1       | 24        | 21.61      | 21.64    | 21.31      |
|               |            | 12      | 0         | 20.53      | 20.65    | 20.41      |
|               |            | 12      | 6         | 20.49      | 20.70    | 20.45      |
|               |            | 12      | 13        | 20.55      | 20.69    | 20.42      |
|               |            | 25      | 0         | 20.57      | 20.66    | 20.39      |
|               | 16QAM      | 1       | 0         | 20.66      | 21.33    | 20.42      |
|               |            | 1       | 12        | 20.89      | 21.35    | 20.62      |
|               |            | 1       | 24        | 20.79      | 21.33    | 20.49      |
|               |            | 12      | 0         | 19.57      | 19.68    | 19.44      |
|               |            | 12      | 6         | 19.51      | 19.76    | 19.41      |
|               |            | 12      | 13        | 19.54      | 19.72    | 19.43      |
|               |            | 25      | 0         | 19.52      | 19.61    | 19.31      |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH   | Mid CH   | High CH  |
|---------------|------------|---------|-----------|----------|----------|----------|
|               |            |         |           | 20800 CH | 21100 CH | 21400 CH |
|               |            |         |           | 2505 MHz | 2535 MHz | 2565 MHz |
| 7 / 10M       | QPSK       | 1       | 0         | 21.38    | 21.56    | 21.13    |
|               |            | 1       | 24        | 21.30    | 21.63    | 21.11    |
|               |            | 1       | 49        | 21.26    | 21.49    | 21.09    |
|               |            | 25      | 0         | 20.52    | 20.62    | 20.33    |
|               |            | 25      | 12        | 20.47    | 20.60    | 20.33    |
|               |            | 25      | 25        | 20.38    | 20.62    | 20.29    |
|               |            | 50      | 0         | 20.45    | 20.55    | 20.26    |
|               | 16QAM      | 1       | 0         | 20.46    | 21.00    | 20.86    |
|               |            | 1       | 24        | 20.49    | 21.04    | 20.60    |
|               |            | 1       | 49        | 20.76    | 20.94    | 20.89    |
|               |            | 25      | 0         | 19.52    | 19.69    | 19.44    |
|               |            | 25      | 12        | 19.52    | 19.77    | 19.49    |
|               |            | 25      | 25        | 19.37    | 19.74    | 19.47    |
|               |            | 50      | 0         | 19.43    | 19.68    | 19.41    |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH     | Mid CH   | High CH    |
|---------------|------------|---------|-----------|------------|----------|------------|
|               |            |         |           | 20825 CH   | 21100 CH | 21375 CH   |
|               |            |         |           | 2507.5 MHz | 2535 MHz | 2562.5 MHz |
| 7 / 15M       | QPSK       | 1       | 0         | 21.19      | 21.48    | 21.11      |
|               |            | 1       | 37        | 21.44      | 21.56    | 21.27      |
|               |            | 1       | 74        | 21.29      | 21.33    | 21.02      |
|               |            | 36      | 0         | 20.55      | 20.58    | 20.34      |
|               |            | 36      | 19        | 20.59      | 20.63    | 20.46      |
|               |            | 36      | 39        | 20.44      | 20.54    | 20.37      |
|               |            | 75      | 0         | 20.50      | 20.52    | 20.37      |
|               | 16QAM      | 1       | 0         | 20.32      | 20.86    | 20.70      |
|               |            | 1       | 37        | 20.47      | 20.93    | 20.82      |
|               |            | 1       | 74        | 20.26      | 20.72    | 20.64      |
|               |            | 36      | 0         | 19.52      | 19.62    | 19.33      |
|               |            | 36      | 19        | 19.58      | 19.65    | 19.40      |
|               |            | 36      | 39        | 19.47      | 19.57    | 19.37      |
|               |            | 75      | 0         | 19.51      | 19.56    | 19.38      |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH   | Mid CH   | High CH  |
|---------------|------------|---------|-----------|----------|----------|----------|
|               |            |         |           | 20850 CH | 21100 CH | 21350 CH |
|               |            |         |           | 2510 MHz | 2535 MHz | 2560 MHz |
| 7 / 20M       | QPSK       | 1       | 0         | 21.53    | 21.67    | 21.44    |
|               |            | 1       | 50        | 21.69    | 21.76    | 21.64    |
|               |            | 1       | 99        | 21.53    | 21.44    | 21.38    |
|               |            | 50      | 0         | 20.69    | 20.77    | 20.54    |
|               |            | 50      | 25        | 20.68    | 20.86    | 20.55    |
|               |            | 50      | 50        | 20.68    | 20.74    | 20.52    |
|               |            | 100     | 0         | 20.68    | 20.81    | 20.49    |
|               | 16QAM      | 1       | 0         | 21.25    | 21.50    | 20.85    |
|               |            | 1       | 50        | 21.39    | 21.63    | 20.88    |
|               |            | 1       | 99        | 20.99    | 21.29    | 20.68    |
|               |            | 50      | 0         | 19.74    | 19.73    | 19.53    |
|               |            | 50      | 25        | 19.72    | 19.83    | 19.54    |
|               |            | 50      | 50        | 19.73    | 19.77    | 19.49    |
|               |            | 100     | 0         | 19.72    | 19.84    | 19.52    |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH    | Mid CH    | High CH   |
|---------------|------------|---------|-----------|-----------|-----------|-----------|
|               |            |         |           | 23017 CH  | 23095 CH  | 23173 CH  |
|               |            |         |           | 699.7 MHz | 707.5 MHz | 715.3 MHz |
| 12 / 1.4M     | QPSK       | 1       | 0         | 23.26     | 23.22     | 23.12     |
|               |            | 1       | 2         | 23.30     | 23.04     | 23.00     |
|               |            | 1       | 5         | 23.27     | 23.31     | 23.14     |
|               |            | 3       | 0         | 23.13     | 22.92     | 22.89     |
|               |            | 3       | 1         | 23.14     | 22.98     | 22.93     |
|               |            | 3       | 3         | 23.16     | 23.08     | 22.94     |
|               |            | 6       | 0         | 22.10     | 21.88     | 21.85     |
|               | 16QAM      | 1       | 0         | 22.11     | 22.19     | 22.26     |
|               |            | 1       | 2         | 22.47     | 22.04     | 22.36     |
|               |            | 1       | 5         | 22.14     | 22.20     | 22.33     |
|               |            | 3       | 0         | 22.24     | 21.91     | 21.99     |
|               |            | 3       | 1         | 22.20     | 21.95     | 22.03     |
|               |            | 3       | 3         | 22.26     | 22.05     | 22.05     |
|               |            | 6       | 0         | 21.24     | 20.93     | 20.74     |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH    | Mid CH    | High CH   |
|---------------|------------|---------|-----------|-----------|-----------|-----------|
|               |            |         |           | 23025 CH  | 23095 CH  | 23165 CH  |
|               |            |         |           | 700.5 MHz | 707.5 MHz | 714.5 MHz |
| 12 / 3M       | QPSK       | 1       | 0         | 23.30     | 23.04     | 23.10     |
|               |            | 1       | 7         | 23.42     | 23.33     | 22.95     |
|               |            | 1       | 14        | 23.33     | 22.97     | 22.96     |
|               |            | 8       | 0         | 22.20     | 21.97     | 22.01     |
|               |            | 8       | 3         | 22.21     | 22.05     | 21.91     |
|               |            | 8       | 7         | 22.16     | 21.96     | 21.94     |
|               |            | 15      | 0         | 22.12     | 21.97     | 22.03     |
|               | 16QAM      | 1       | 0         | 22.21     | 22.51     | 22.26     |
|               |            | 1       | 7         | 22.23     | 22.46     | 22.30     |
|               |            | 1       | 14        | 22.15     | 22.46     | 22.16     |
|               |            | 8       | 0         | 21.22     | 21.00     | 21.03     |
|               |            | 8       | 3         | 21.23     | 21.03     | 20.89     |
|               |            | 8       | 7         | 21.19     | 20.94     | 20.91     |
|               |            | 15      | 0         | 21.15     | 20.98     | 20.85     |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH    | Mid CH    | High CH   |
|---------------|------------|---------|-----------|-----------|-----------|-----------|
|               |            |         |           | 23035 CH  | 23095 CH  | 23155 CH  |
|               |            |         |           | 701.5 MHz | 707.5 MHz | 713.5 MHz |
| 12 / 5M       | QPSK       | 1       | 0         | 23.33     | 23.03     | 23.11     |
|               |            | 1       | 12        | 23.37     | 23.11     | 23.23     |
|               |            | 1       | 24        | 23.21     | 22.92     | 23.01     |
|               |            | 12      | 0         | 22.05     | 21.93     | 21.87     |
|               |            | 12      | 6         | 22.16     | 21.94     | 21.99     |
|               |            | 12      | 13        | 22.11     | 21.96     | 21.94     |
|               |            | 25      | 0         | 22.12     | 21.93     | 21.85     |
|               | 16QAM      | 1       | 0         | 22.22     | 22.58     | 22.13     |
|               |            | 1       | 12        | 22.31     | 22.58     | 22.29     |
|               |            | 1       | 24        | 22.15     | 22.47     | 22.01     |
|               |            | 12      | 0         | 21.14     | 21.04     | 20.90     |
|               |            | 12      | 6         | 21.13     | 21.05     | 21.07     |
|               |            | 12      | 13        | 21.15     | 21.03     | 20.93     |
|               |            | 25      | 0         | 21.10     | 20.94     | 20.77     |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH   | Mid CH    | High CH  |
|---------------|------------|---------|-----------|----------|-----------|----------|
|               |            |         |           | 23060 CH | 23095 CH  | 23130 CH |
|               |            |         |           | 704 MHz  | 707.5 MHz | 711 MHz  |
| 12 / 10M      | QPSK       | 1       | 0         | 23.19    | 23.24     | 23.06    |
|               |            | 1       | 24        | 23.14    | 23.28     | 23.08    |
|               |            | 1       | 49        | 22.97    | 23.14     | 22.87    |
|               |            | 25      | 0         | 22.14    | 22.00     | 21.99    |
|               |            | 25      | 12        | 22.08    | 21.96     | 21.96    |
|               |            | 25      | 25        | 22.00    | 21.96     | 21.93    |
|               |            | 50      | 0         | 22.05    | 21.94     | 21.95    |
|               | 16QAM      | 1       | 0         | 22.36    | 22.40     | 22.35    |
|               |            | 1       | 24        | 22.08    | 22.40     | 22.48    |
|               |            | 1       | 49        | 22.14    | 22.31     | 22.35    |
|               |            | 25      | 0         | 21.14    | 21.02     | 21.05    |
|               |            | 25      | 12        | 21.06    | 20.99     | 21.08    |
|               |            | 25      | 25        | 21.00    | 20.93     | 21.06    |
|               |            | 50      | 0         | 20.95    | 20.90     | 20.96    |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH    | Mid CH   | High CH   |
|---------------|------------|---------|-----------|-----------|----------|-----------|
|               |            |         |           | 23205 CH  | 23230 CH | 23255 CH  |
|               |            |         |           | 779.5 MHz | 782 MHz  | 784.5 MHz |
| 13 / 5M       | QPSK       | 1       | 0         | 22.92     | 22.93    | 22.90     |
|               |            | 1       | 12        | 23.00     | 22.93    | 22.94     |
|               |            | 1       | 24        | 22.81     | 22.87    | 22.88     |
|               |            | 12      | 0         | 21.77     | 21.68    | 21.74     |
|               |            | 12      | 6         | 21.81     | 21.74    | 21.76     |
|               |            | 12      | 13        | 21.70     | 21.72    | 21.74     |
|               |            | 25      | 0         | 21.78     | 21.67    | 21.78     |
|               | 16QAM      | 1       | 0         | 21.85     | 21.88    | 22.36     |
|               |            | 1       | 12        | 22.03     | 21.94    | 22.39     |
|               |            | 1       | 24        | 21.82     | 21.87    | 22.47     |
|               |            | 12      | 0         | 20.79     | 20.80    | 20.87     |
|               |            | 12      | 6         | 20.88     | 20.83    | 20.85     |
|               |            | 12      | 13        | 20.75     | 20.79    | 20.88     |
|               |            | 25      | 0         | 20.77     | 20.74    | 20.84     |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH   |
|---------------|------------|---------|-----------|----------|
|               |            |         |           | 23230 CH |
|               |            |         |           | 782 MHz  |
| 13 / 10M      | QPSK       | 1       | 0         | 22.77    |
|               |            | 1       | 24        | 22.91    |
|               |            | 1       | 49        | 22.75    |
|               |            | 25      | 0         | 21.76    |
|               |            | 25      | 12        | 21.79    |
|               |            | 25      | 25        | 21.70    |
|               |            | 50      | 0         | 21.85    |
|               | 16QAM      | 1       | 0         | 21.93    |
|               |            | 1       | 24        | 21.92    |
|               |            | 1       | 49        | 22.06    |
|               |            | 25      | 0         | 20.78    |
|               |            | 25      | 12        | 20.84    |
|               |            | 25      | 25        | 20.74    |
|               |            | 50      | 0         | 20.79    |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH    | Mid CH    | High CH   |
|---------------|------------|---------|-----------|-----------|-----------|-----------|
|               |            |         |           | 39675 CH  | 40620 CH  | 41565 CH  |
|               |            |         |           | 2498.5MHz | 2593.0MHz | 2687.5MHz |
| 41 / 5M       | QPSK       | 1       | 0         | 21.69     | 21.80     | 21.77     |
|               |            | 1       | 12        | 21.91     | 22.01     | 21.91     |
|               |            | 1       | 24        | 21.79     | 21.89     | 21.84     |
|               |            | 12      | 0         | 20.72     | 20.70     | 20.69     |
|               |            | 12      | 6         | 20.81     | 20.80     | 20.81     |
|               |            | 12      | 13        | 20.83     | 20.72     | 20.82     |
|               |            | 25      | 0         | 20.75     | 20.72     | 20.77     |
|               | 16QAM      | 1       | 0         | 21.25     | 21.02     | 21.17     |
|               |            | 1       | 12        | 21.43     | 21.13     | 21.53     |
|               |            | 1       | 24        | 21.35     | 21.08     | 21.35     |
|               |            | 12      | 0         | 19.88     | 19.79     | 19.68     |
|               |            | 12      | 6         | 19.97     | 19.79     | 19.85     |
|               |            | 12      | 13        | 19.95     | 19.78     | 19.79     |
|               |            | 25      | 0         | 19.84     | 19.71     | 19.79     |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH    | Mid CH    | High CH   |
|---------------|------------|---------|-----------|-----------|-----------|-----------|
|               |            |         |           | 39700 CH  | 40620 CH  | 41540 CH  |
|               |            |         |           | 2501.0MHz | 2593.0MHz | 2685.0MHz |
| 41 / 10M      | QPSK       | 1       | 0         | 21.64     | 21.94     | 21.79     |
|               |            | 1       | 24        | 21.97     | 21.96     | 21.81     |
|               |            | 1       | 49        | 21.85     | 21.89     | 21.90     |
|               |            | 25      | 0         | 20.81     | 20.71     | 20.74     |
|               |            | 25      | 12        | 20.92     | 20.75     | 20.73     |
|               |            | 25      | 25        | 20.82     | 20.84     | 20.82     |
|               |            | 50      | 0         | 20.88     | 20.74     | 20.64     |
|               | 16QAM      | 1       | 0         | 21.29     | 21.24     | 21.33     |
|               |            | 1       | 24        | 21.47     | 21.35     | 21.17     |
|               |            | 1       | 49        | 21.57     | 21.18     | 21.32     |
|               |            | 25      | 0         | 19.88     | 19.71     | 19.75     |
|               |            | 25      | 12        | 19.97     | 19.76     | 19.75     |
|               |            | 25      | 25        | 19.91     | 19.77     | 19.83     |
|               |            | 50      | 0         | 19.86     | 19.78     | 19.65     |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH    | Mid CH    | High CH   |
|---------------|------------|---------|-----------|-----------|-----------|-----------|
|               |            |         |           | 39725 CH  | 40620 CH  | 41515 CH  |
|               |            |         |           | 2503.5MHz | 2593.0MHz | 2682.5MHz |
| 41 / 15M      | QPSK       | 1       | 0         | 21.64     | 22.11     | 21.94     |
|               |            | 1       | 37        | 21.88     | 21.95     | 21.93     |
|               |            | 1       | 74        | 21.80     | 21.83     | 22.03     |
|               |            | 36      | 0         | 20.90     | 20.83     | 20.90     |
|               |            | 36      | 19        | 20.99     | 20.91     | 20.94     |
|               |            | 36      | 39        | 20.88     | 20.84     | 20.82     |
|               |            | 75      | 0         | 20.90     | 20.83     | 20.86     |
|               | 16QAM      | 1       | 0         | 21.09     | 21.24     | 21.01     |
|               |            | 1       | 37        | 21.16     | 21.33     | 21.19     |
|               |            | 1       | 74        | 21.02     | 21.24     | 21.05     |
|               |            | 36      | 0         | 19.90     | 19.85     | 19.92     |
|               |            | 36      | 19        | 19.94     | 19.87     | 19.94     |
|               |            | 36      | 39        | 19.86     | 19.81     | 19.86     |
|               |            | 75      | 0         | 19.95     | 19.82     | 19.87     |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH    | Mid CH    | High CH   |
|---------------|------------|---------|-----------|-----------|-----------|-----------|
|               |            |         |           | 39750 CH  | 40620 CH  | 41490 CH  |
|               |            |         |           | 2506.0MHz | 2593.0MHz | 2680.0MHz |
| 41 / 20M      | QPSK       | 1       | 0         | 21.66     | 21.76     | 21.83     |
|               |            | 1       | 50        | 21.76     | 21.88     | 21.76     |
|               |            | 1       | 99        | 21.73     | 21.65     | 21.58     |
|               |            | 50      | 0         | 20.78     | 20.89     | 20.91     |
|               |            | 50      | 25        | 20.96     | 20.91     | 20.88     |
|               |            | 50      | 50        | 20.81     | 20.83     | 20.80     |
|               |            | 100     | 0         | 20.85     | 20.86     | 20.83     |
|               | 16QAM      | 1       | 0         | 21.79     | 21.08     | 21.13     |
|               |            | 1       | 50        | 21.60     | 21.43     | 21.30     |
|               |            | 1       | 99        | 21.00     | 20.88     | 21.13     |
|               |            | 50      | 0         | 19.77     | 19.86     | 19.89     |
|               |            | 50      | 25        | 19.90     | 19.87     | 19.87     |
|               |            | 50      | 50        | 19.79     | 19.76     | 19.77     |
|               |            | 100     | 0         | 19.84     | 19.82     | 19.91     |

# EIRP Power:

| Modulation | Band            | WCDMA IV |         |         |
|------------|-----------------|----------|---------|---------|
|            | Tx Channel      | 1312 CH  | 1413 CH | 1513 CH |
|            | Rx Channel      | 1537 CH  | 1638 CH | 1738 CH |
|            | Frequency       | 1712.4   | 1732.6  | 1752.6  |
| BPSK       | RMC 12.2K       | 26.57    | 26.46   | 26.43   |
|            | RMC 64K         | 26.56    | 26.48   | 26.45   |
|            | RMC 144K        | 26.60    | 26.46   | 26.40   |
|            | RMC 384K        | 26.59    | 26.45   | 26.42   |
| BPSK       | HSDPA Subtest-1 | 25.45    | 25.18   | 25.30   |
|            | HSDPA Subtest-2 | 25.52    | 25.21   | 25.33   |
|            | HSDPA Subtest-3 | 25.02    | 24.75   | 24.84   |
|            | HSDPA Subtest-4 | 25.01    | 24.77   | 24.87   |
| BPSK       | HSUPA Subtest-1 | 25.49    | 25.20   | 25.32   |
|            | HSUPA Subtest-2 | 25.07    | 24.84   | 24.81   |
|            | HSUPA Subtest-3 | 25.62    | 25.45   | 25.42   |
|            | HSUPA Subtest-4 | 25.58    | 25.40   | 25.35   |
|            | HSUPA Subtest-5 | 25.59    | 25.43   | 25.40   |

# EIRP Power:

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH     | Mid CH     | High CH    |
|---------------|------------|---------|-----------|------------|------------|------------|
|               |            |         |           | 19957 CH   | 20175 CH   | 20393 CH   |
|               |            |         |           | 1710.7 MHz | 1732.5 MHz | 1754.3 MHz |
| 4 / 1.4M      | QPSK       | 1       | 0         | 26.02      | 25.92      | 26.10      |
|               |            | 1       | 2         | 25.97      | 25.98      | 25.80      |
|               |            | 1       | 5         | 26.10      | 25.87      | 26.13      |
|               |            | 3       | 0         | 25.80      | 25.75      | 25.74      |
|               |            | 3       | 1         | 25.89      | 25.82      | 25.77      |
|               |            | 3       | 3         | 25.95      | 25.86      | 25.82      |
|               |            | 6       | 0         | 24.92      | 24.77      | 24.70      |
|               | 16QAM      | 1       | 0         | 25.26      | 25.32      | 24.82      |
|               |            | 1       | 2         | 25.27      | 25.32      | 25.01      |
|               |            | 1       | 5         | 25.44      | 25.13      | 24.89      |
|               |            | 3       | 0         | 25.00      | 24.91      | 24.82      |
|               |            | 3       | 1         | 25.13      | 24.96      | 24.87      |
|               |            | 3       | 3         | 25.24      | 25.03      | 24.89      |
|               |            | 6       | 0         | 24.04      | 23.68      | 23.87      |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH     | Mid CH     | High CH    |
|---------------|------------|---------|-----------|------------|------------|------------|
|               |            |         |           | 19965 CH   | 20175 CH   | 20385 CH   |
|               |            |         |           | 1711.5 MHz | 1732.5 MHz | 1753.5 MHz |
| 4 / 3M        | QPSK       | 1       | 0         | 26.03      | 26.09      | 25.84      |
|               |            | 1       | 7         | 26.08      | 26.01      | 25.78      |
|               |            | 1       | 14        | 26.22      | 26.04      | 25.84      |
|               |            | 8       | 0         | 24.99      | 24.83      | 24.73      |
|               |            | 8       | 3         | 25.01      | 24.77      | 24.76      |
|               |            | 8       | 7         | 24.96      | 24.83      | 24.75      |
|               |            | 15      | 0         | 25.01      | 24.82      | 24.76      |
|               | 16QAM      | 1       | 0         | 25.01      | 25.46      | 24.99      |
|               |            | 1       | 7         | 25.11      | 25.32      | 24.99      |
|               |            | 1       | 14        | 25.19      | 25.33      | 24.89      |
|               |            | 8       | 0         | 24.08      | 23.89      | 23.67      |
|               |            | 8       | 3         | 24.05      | 23.76      | 23.74      |
|               |            | 8       | 7         | 24.05      | 23.84      | 23.72      |
|               |            | 15      | 0         | 24.03      | 23.82      | 23.63      |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH     | Mid CH     | High CH    |
|---------------|------------|---------|-----------|------------|------------|------------|
|               |            |         |           | 19975 CH   | 20175 CH   | 20375 CH   |
|               |            |         |           | 1712.5 MHz | 1732.5 MHz | 1752.5 MHz |
| 4 / 5M        | QPSK       | 1       | 0         | 26.18      | 25.92      | 26.01      |
|               |            | 1       | 12        | 26.25      | 26.00      | 26.09      |
|               |            | 1       | 24        | 26.27      | 25.98      | 26.06      |
|               |            | 12      | 0         | 25.00      | 24.83      | 24.83      |
|               |            | 12      | 6         | 25.06      | 24.86      | 24.89      |
|               |            | 12      | 13        | 24.98      | 24.84      | 24.84      |
|               |            | 25      | 0         | 25.05      | 24.71      | 24.82      |
|               | 16QAM      | 1       | 0         | 25.21      | 25.46      | 24.96      |
|               |            | 1       | 12        | 25.38      | 25.43      | 25.14      |
|               |            | 1       | 24        | 25.32      | 25.49      | 25.03      |
|               |            | 12      | 0         | 24.03      | 23.97      | 23.86      |
|               |            | 12      | 6         | 24.10      | 23.96      | 23.88      |
|               |            | 12      | 13        | 24.04      | 23.96      | 23.84      |
|               |            | 25      | 0         | 24.03      | 23.74      | 23.73      |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH   | Mid CH     | High CH  |
|---------------|------------|---------|-----------|----------|------------|----------|
|               |            |         |           | 20000 CH | 20175 CH   | 20350 CH |
|               |            |         |           | 1715 MHz | 1732.5 MHz | 1750 MHz |
| 4 / 10M       | QPSK       | 1       | 0         | 26.00    | 26.11      | 25.86    |
|               |            | 1       | 24        | 26.08    | 25.99      | 25.76    |
|               |            | 1       | 49        | 26.06    | 25.96      | 25.73    |
|               |            | 25      | 0         | 25.00    | 24.87      | 24.79    |
|               |            | 25      | 12        | 25.01    | 24.79      | 24.70    |
|               |            | 25      | 25        | 25.00    | 24.81      | 24.73    |
|               |            | 50      | 0         | 25.02    | 24.80      | 24.67    |
|               | 16QAM      | 1       | 0         | 25.19    | 25.15      | 25.34    |
|               |            | 1       | 24        | 25.13    | 25.24      | 24.87    |
|               |            | 1       | 49        | 25.35    | 25.16      | 25.03    |
|               |            | 25      | 0         | 23.97    | 23.77      | 23.86    |
|               |            | 25      | 12        | 24.02    | 23.79      | 23.76    |
|               |            | 25      | 25        | 23.99    | 23.76      | 23.73    |
|               |            | 50      | 0         | 23.97    | 23.80      | 23.67    |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH     | Mid CH     | High CH    |
|---------------|------------|---------|-----------|------------|------------|------------|
|               |            |         |           | 20025 CH   | 20175 CH   | 20325 CH   |
|               |            |         |           | 1717.5 MHz | 1732.5 MHz | 1747.5 MHz |
| 4 / 15M       | QPSK       | 1       | 0         | 26.00      | 26.01      | 25.85      |
|               |            | 1       | 37        | 26.01      | 25.89      | 25.81      |
|               |            | 1       | 74        | 25.79      | 25.78      | 25.74      |
|               |            | 36      | 0         | 25.00      | 25.78      | 24.81      |
|               |            | 36      | 19        | 25.02      | 24.93      | 24.84      |
|               |            | 36      | 39        | 24.96      | 24.80      | 24.78      |
|               |            | 75      | 0         | 24.96      | 24.85      | 24.76      |
|               | 16QAM      | 1       | 0         | 25.01      | 25.22      | 25.36      |
|               |            | 1       | 37        | 25.08      | 25.16      | 25.35      |
|               |            | 1       | 74        | 24.86      | 25.09      | 25.23      |
|               |            | 36      | 0         | 23.96      | 24.87      | 23.79      |
|               |            | 36      | 19        | 23.98      | 23.91      | 23.75      |
|               |            | 36      | 39        | 23.88      | 23.78      | 23.69      |
|               |            | 75      | 0         | 23.95      | 23.82      | 23.71      |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH   | Mid CH     | High CH  |
|---------------|------------|---------|-----------|----------|------------|----------|
|               |            |         |           | 20050 CH | 20175 CH   | 20300 CH |
|               |            |         |           | 1720 MHz | 1732.5 MHz | 1745 MHz |
| 4 / 20M       | QPSK       | 1       | 0         | 26.00    | 25.78      | 25.83    |
|               |            | 1       | 50        | 26.08    | 25.02      | 25.90    |
|               |            | 1       | 99        | 25.96    | 25.65      | 25.64    |
|               |            | 50      | 0         | 24.89    | 24.96      | 24.78    |
|               |            | 50      | 25        | 25.03    | 24.92      | 24.84    |
|               |            | 50      | 50        | 25.02    | 24.80      | 24.73    |
|               |            | 100     | 0         | 24.92    | 24.80      | 24.79    |
|               | 16QAM      | 1       | 0         | 25.65    | 25.72      | 25.12    |
|               |            | 1       | 50        | 25.76    | 24.02      | 25.20    |
|               |            | 1       | 99        | 25.49    | 25.10      | 24.97    |
|               |            | 50      | 0         | 23.95    | 23.90      | 23.73    |
|               |            | 50      | 25        | 24.05    | 23.88      | 23.77    |
|               |            | 50      | 50        | 24.02    | 23.75      | 23.65    |
|               |            | 100     | 0         | 23.96    | 23.77      | 23.77    |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH     | Mid CH   | High CH    |
|---------------|------------|---------|-----------|------------|----------|------------|
|               |            |         |           | 20775 CH   | 21100 CH | 21425 CH   |
|               |            |         |           | 2502.5 MHz | 2535 MHz | 2567.5 MHz |
| 7 / 5M        | QPSK       | 1       | 0         | 24.55      | 24.80    | 24.41      |
|               |            | 1       | 12        | 24.70      | 24.83    | 24.50      |
|               |            | 1       | 24        | 24.71      | 24.74    | 24.41      |
|               |            | 12      | 0         | 23.63      | 23.75    | 23.51      |
|               |            | 12      | 6         | 23.59      | 23.80    | 23.55      |
|               |            | 12      | 13        | 23.65      | 23.79    | 23.52      |
|               |            | 25      | 0         | 23.67      | 23.76    | 23.49      |
|               | 16QAM      | 1       | 0         | 23.76      | 24.43    | 23.52      |
|               |            | 1       | 12        | 23.99      | 24.45    | 23.72      |
|               |            | 1       | 24        | 23.89      | 24.43    | 23.59      |
|               |            | 12      | 0         | 22.67      | 22.78    | 22.54      |
|               |            | 12      | 6         | 22.61      | 22.86    | 22.51      |
|               |            | 12      | 13        | 22.64      | 22.82    | 22.53      |
|               |            | 25      | 0         | 22.62      | 22.71    | 22.41      |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH   | Mid CH   | High CH  |
|---------------|------------|---------|-----------|----------|----------|----------|
|               |            |         |           | 20800 CH | 21100 CH | 21400 CH |
|               |            |         |           | 2505 MHz | 2535 MHz | 2565 MHz |
| 7 / 10M       | QPSK       | 1       | 0         | 24.48    | 24.66    | 24.23    |
|               |            | 1       | 24        | 24.40    | 24.73    | 24.21    |
|               |            | 1       | 49        | 24.36    | 24.59    | 24.19    |
|               |            | 25      | 0         | 23.62    | 23.72    | 23.43    |
|               |            | 25      | 12        | 23.57    | 23.70    | 23.43    |
|               |            | 25      | 25        | 23.48    | 23.72    | 23.39    |
|               |            | 50      | 0         | 23.55    | 23.65    | 23.36    |
|               | 16QAM      | 1       | 0         | 23.56    | 24.10    | 23.96    |
|               |            | 1       | 24        | 23.59    | 24.14    | 23.70    |
|               |            | 1       | 49        | 23.86    | 24.04    | 23.99    |
|               |            | 25      | 0         | 22.62    | 22.79    | 22.54    |
|               |            | 25      | 12        | 22.62    | 22.87    | 22.59    |
|               |            | 25      | 25        | 22.47    | 22.84    | 22.57    |
|               |            | 50      | 0         | 22.53    | 22.78    | 22.51    |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH     | Mid CH   | High CH    |
|---------------|------------|---------|-----------|------------|----------|------------|
|               |            |         |           | 20825 CH   | 21100 CH | 21375 CH   |
|               |            |         |           | 2507.5 MHz | 2535 MHz | 2562.5 MHz |
| 7 / 15M       | QPSK       | 1       | 0         | 24.29      | 24.58    | 24.21      |
|               |            | 1       | 37        | 24.54      | 24.66    | 24.37      |
|               |            | 1       | 74        | 24.39      | 24.43    | 24.12      |
|               |            | 36      | 0         | 23.65      | 23.68    | 23.44      |
|               |            | 36      | 19        | 23.69      | 23.73    | 23.56      |
|               |            | 36      | 39        | 23.54      | 23.64    | 23.47      |
|               |            | 75      | 0         | 23.60      | 23.62    | 23.47      |
|               | 16QAM      | 1       | 0         | 23.42      | 23.96    | 23.80      |
|               |            | 1       | 37        | 23.57      | 24.03    | 23.92      |
|               |            | 1       | 74        | 23.36      | 23.82    | 23.74      |
|               |            | 36      | 0         | 22.62      | 22.72    | 22.43      |
|               |            | 36      | 19        | 22.68      | 22.75    | 22.50      |
|               |            | 36      | 39        | 22.57      | 22.67    | 22.47      |
|               |            | 75      | 0         | 22.61      | 22.66    | 22.48      |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH   | Mid CH   | High CH  |
|---------------|------------|---------|-----------|----------|----------|----------|
|               |            |         |           | 20850 CH | 21100 CH | 21350 CH |
|               |            |         |           | 2510 MHz | 2535 MHz | 2560 MHz |
| 7 / 20M       | QPSK       | 1       | 0         | 24.63    | 24.77    | 24.54    |
|               |            | 1       | 50        | 24.79    | 24.86    | 24.74    |
|               |            | 1       | 99        | 24.63    | 24.54    | 24.48    |
|               |            | 50      | 0         | 23.79    | 23.87    | 23.64    |
|               |            | 50      | 25        | 23.78    | 23.96    | 23.65    |
|               |            | 50      | 50        | 23.78    | 23.84    | 23.62    |
|               |            | 100     | 0         | 23.78    | 23.91    | 23.59    |
|               | 16QAM      | 1       | 0         | 24.35    | 24.60    | 23.95    |
|               |            | 1       | 50        | 24.49    | 24.73    | 23.98    |
|               |            | 1       | 99        | 24.09    | 24.39    | 23.78    |
|               |            | 50      | 0         | 22.84    | 22.83    | 22.63    |
|               |            | 50      | 25        | 22.82    | 22.93    | 22.64    |
|               |            | 50      | 50        | 22.83    | 22.87    | 22.59    |
|               |            | 100     | 0         | 22.82    | 22.94    | 22.62    |

# ERP Power:

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH    | Mid CH    | High CH   |
|---------------|------------|---------|-----------|-----------|-----------|-----------|
|               |            |         |           | 23017 CH  | 23095 CH  | 23173 CH  |
|               |            |         |           | 699.7 MHz | 707.5 MHz | 715.3 MHz |
| 12 / 1.4M     | QPSK       | 1       | 0         | 22.83     | 22.79     | 22.69     |
|               |            | 1       | 2         | 22.87     | 22.61     | 22.57     |
|               |            | 1       | 5         | 22.84     | 22.88     | 22.71     |
|               |            | 3       | 0         | 22.70     | 22.49     | 22.46     |
|               |            | 3       | 1         | 22.71     | 22.55     | 22.50     |
|               |            | 3       | 3         | 22.73     | 22.65     | 22.51     |
|               |            | 6       | 0         | 21.67     | 21.45     | 21.42     |
|               | 16QAM      | 1       | 0         | 21.68     | 21.76     | 21.83     |
|               |            | 1       | 2         | 22.04     | 21.61     | 21.93     |
|               |            | 1       | 5         | 21.71     | 21.77     | 21.90     |
|               |            | 3       | 0         | 21.81     | 21.48     | 21.56     |
|               |            | 3       | 1         | 21.77     | 21.52     | 21.60     |
|               |            | 3       | 3         | 21.83     | 21.62     | 21.62     |
|               |            | 6       | 0         | 20.81     | 20.50     | 20.31     |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH    | Mid CH    | High CH   |
|---------------|------------|---------|-----------|-----------|-----------|-----------|
|               |            |         |           | 23025 CH  | 23095 CH  | 23165 CH  |
|               |            |         |           | 700.5 MHz | 707.5 MHz | 714.5 MHz |
| 12 / 3M       | QPSK       | 1       | 0         | 22.87     | 22.61     | 22.67     |
|               |            | 1       | 7         | 22.99     | 22.90     | 22.52     |
|               |            | 1       | 14        | 22.90     | 22.54     | 22.53     |
|               |            | 8       | 0         | 21.77     | 21.54     | 21.58     |
|               |            | 8       | 3         | 21.78     | 21.62     | 21.48     |
|               |            | 8       | 7         | 21.73     | 21.53     | 21.51     |
|               |            | 15      | 0         | 21.69     | 21.54     | 21.60     |
|               | 16QAM      | 1       | 0         | 21.78     | 22.08     | 21.83     |
|               |            | 1       | 7         | 21.80     | 22.03     | 21.87     |
|               |            | 1       | 14        | 21.72     | 22.03     | 21.73     |
|               |            | 8       | 0         | 20.79     | 20.57     | 20.60     |
|               |            | 8       | 3         | 20.80     | 20.60     | 20.46     |
|               |            | 8       | 7         | 20.76     | 20.51     | 20.48     |
|               |            | 15      | 0         | 20.72     | 20.55     | 20.42     |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH    | Mid CH    | High CH   |
|---------------|------------|---------|-----------|-----------|-----------|-----------|
|               |            |         |           | 23035 CH  | 23095 CH  | 23155 CH  |
|               |            |         |           | 701.5 MHz | 707.5 MHz | 713.5 MHz |
| 12 / 5M       | QPSK       | 1       | 0         | 22.90     | 22.60     | 22.68     |
|               |            | 1       | 12        | 22.94     | 22.68     | 22.80     |
|               |            | 1       | 24        | 22.78     | 22.49     | 22.58     |
|               |            | 12      | 0         | 21.62     | 21.50     | 21.44     |
|               |            | 12      | 6         | 21.73     | 21.51     | 21.56     |
|               |            | 12      | 13        | 21.68     | 21.53     | 21.51     |
|               |            | 25      | 0         | 21.69     | 21.50     | 21.42     |
|               | 16QAM      | 1       | 0         | 21.79     | 22.15     | 21.70     |
|               |            | 1       | 12        | 21.88     | 22.15     | 21.86     |
|               |            | 1       | 24        | 21.72     | 22.04     | 21.58     |
|               |            | 12      | 0         | 20.71     | 20.61     | 20.47     |
|               |            | 12      | 6         | 20.70     | 20.62     | 20.64     |
|               |            | 12      | 13        | 20.72     | 20.60     | 20.50     |
|               |            | 25      | 0         | 20.67     | 20.51     | 20.34     |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH   | Mid CH    | High CH  |
|---------------|------------|---------|-----------|----------|-----------|----------|
|               |            |         |           | 23060 CH | 23095 CH  | 23130 CH |
|               |            |         |           | 704 MHz  | 707.5 MHz | 711 MHz  |
| 12 / 10M      | QPSK       | 1       | 0         | 22.76    | 22.81     | 22.63    |
|               |            | 1       | 24        | 22.71    | 22.85     | 22.65    |
|               |            | 1       | 49        | 22.54    | 22.71     | 22.44    |
|               |            | 25      | 0         | 21.71    | 21.57     | 21.56    |
|               |            | 25      | 12        | 21.65    | 21.53     | 21.53    |
|               |            | 25      | 25        | 21.57    | 21.53     | 21.50    |
|               |            | 50      | 0         | 21.62    | 21.51     | 21.52    |
|               | 16QAM      | 1       | 0         | 21.93    | 21.97     | 21.92    |
|               |            | 1       | 24        | 21.65    | 21.97     | 22.05    |
|               |            | 1       | 49        | 21.71    | 21.88     | 21.92    |
|               |            | 25      | 0         | 20.71    | 20.59     | 20.62    |
|               |            | 25      | 12        | 20.63    | 20.56     | 20.65    |
|               |            | 25      | 25        | 20.57    | 20.50     | 20.63    |
|               |            | 50      | 0         | 20.52    | 20.47     | 20.53    |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH    | Mid CH   | High CH   |
|---------------|------------|---------|-----------|-----------|----------|-----------|
|               |            |         |           | 23205 CH  | 23230 CH | 23255 CH  |
|               |            |         |           | 779.5 MHz | 782 MHz  | 784.5 MHz |
| 13 / 5M       | QPSK       | 1       | 0         | 22.49     | 22.50    | 22.47     |
|               |            | 1       | 12        | 22.57     | 22.50    | 22.51     |
|               |            | 1       | 24        | 22.38     | 22.44    | 22.45     |
|               |            | 12      | 0         | 21.34     | 21.25    | 21.31     |
|               |            | 12      | 6         | 21.38     | 21.31    | 21.33     |
|               |            | 12      | 13        | 21.27     | 21.29    | 21.31     |
|               |            | 25      | 0         | 21.35     | 21.24    | 21.35     |
|               | 16QAM      | 1       | 0         | 21.42     | 21.45    | 21.93     |
|               |            | 1       | 12        | 21.60     | 21.51    | 21.96     |
|               |            | 1       | 24        | 21.39     | 21.44    | 22.04     |
|               |            | 12      | 0         | 20.36     | 20.37    | 20.44     |
|               |            | 12      | 6         | 20.45     | 20.40    | 20.42     |
|               |            | 12      | 13        | 20.32     | 20.36    | 20.45     |
|               |            | 25      | 0         | 20.34     | 20.31    | 20.41     |

| LTE Band / BW | Modulation | RB Size | RB Offset | Mid CH   |
|---------------|------------|---------|-----------|----------|
|               |            |         |           | 23230 CH |
|               |            |         |           | 782 MHz  |
| 13 / 10M      | QPSK       | 1       | 0         | 22.34    |
|               |            | 1       | 24        | 22.48    |
|               |            | 1       | 49        | 22.32    |
|               |            | 25      | 0         | 21.33    |
|               |            | 25      | 12        | 21.36    |
|               |            | 25      | 25        | 21.27    |
|               |            | 50      | 0         | 21.42    |
|               | 16QAM      | 1       | 0         | 21.50    |
|               |            | 1       | 24        | 21.49    |
|               |            | 1       | 49        | 21.63    |
|               |            | 25      | 0         | 20.35    |
|               |            | 25      | 12        | 20.41    |
|               |            | 25      | 25        | 20.31    |
|               |            | 50      | 0         | 20.36    |

# EIRP Power:

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH    | Mid CH    | High CH   |
|---------------|------------|---------|-----------|-----------|-----------|-----------|
|               |            |         |           | 39675 CH  | 40620 CH  | 41565 CH  |
|               |            |         |           | 2498.5MHz | 2593.0MHz | 2687.5MHz |
| 41 / 5M       | QPSK       | 1       | 0         | 24.79     | 24.90     | 24.87     |
|               |            | 1       | 12        | 25.01     | 25.11     | 25.01     |
|               |            | 1       | 24        | 24.89     | 24.99     | 24.94     |
|               |            | 12      | 0         | 23.82     | 23.80     | 23.79     |
|               |            | 12      | 6         | 23.91     | 23.90     | 23.91     |
|               |            | 12      | 13        | 23.93     | 23.82     | 23.92     |
|               |            | 25      | 0         | 23.85     | 23.82     | 23.87     |
|               | 16QAM      | 1       | 0         | 24.35     | 24.12     | 24.27     |
|               |            | 1       | 12        | 24.53     | 24.23     | 24.63     |
|               |            | 1       | 24        | 24.45     | 24.18     | 24.45     |
|               |            | 12      | 0         | 22.98     | 22.89     | 22.78     |
|               |            | 12      | 6         | 23.07     | 22.89     | 22.95     |
|               |            | 12      | 13        | 23.05     | 22.88     | 22.89     |
|               |            | 25      | 0         | 22.94     | 22.81     | 22.89     |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH    | Mid CH    | High CH   |
|---------------|------------|---------|-----------|-----------|-----------|-----------|
|               |            |         |           | 39700 CH  | 40620 CH  | 41540 CH  |
|               |            |         |           | 2501.0MHz | 2593.0MHz | 2685.0MHz |
| 41 / 10M      | QPSK       | 1       | 0         | 24.74     | 25.04     | 24.89     |
|               |            | 1       | 24        | 25.07     | 25.06     | 24.91     |
|               |            | 1       | 49        | 24.95     | 24.99     | 25.00     |
|               |            | 25      | 0         | 23.91     | 23.81     | 23.84     |
|               |            | 25      | 12        | 24.02     | 23.85     | 23.83     |
|               |            | 25      | 25        | 23.92     | 23.94     | 23.92     |
|               |            | 50      | 0         | 23.98     | 23.84     | 23.74     |
|               | 16QAM      | 1       | 0         | 24.39     | 24.34     | 24.43     |
|               |            | 1       | 24        | 24.57     | 24.45     | 24.27     |
|               |            | 1       | 49        | 24.67     | 24.28     | 24.42     |
|               |            | 25      | 0         | 22.98     | 22.81     | 22.85     |
|               |            | 25      | 12        | 23.07     | 22.86     | 22.85     |
|               |            | 25      | 25        | 23.01     | 22.87     | 22.93     |
|               |            | 50      | 0         | 22.96     | 22.88     | 22.75     |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH    | Mid CH    | High CH   |
|---------------|------------|---------|-----------|-----------|-----------|-----------|
|               |            |         |           | 39725 CH  | 40620 CH  | 41515 CH  |
|               |            |         |           | 2503.5MHz | 2593.0MHz | 2682.5MHz |
| 41 / 15M      | QPSK       | 1       | 0         | 24.74     | 25.21     | 25.04     |
|               |            | 1       | 37        | 24.98     | 25.05     | 25.03     |
|               |            | 1       | 74        | 24.90     | 24.93     | 25.13     |
|               |            | 36      | 0         | 24.00     | 23.93     | 24.00     |
|               |            | 36      | 19        | 24.09     | 24.01     | 24.04     |
|               |            | 36      | 39        | 23.98     | 23.94     | 23.92     |
|               |            | 75      | 0         | 24.00     | 23.93     | 23.96     |
|               | 16QAM      | 1       | 0         | 24.19     | 24.34     | 24.11     |
|               |            | 1       | 37        | 24.26     | 24.43     | 24.29     |
|               |            | 1       | 74        | 24.12     | 24.34     | 24.15     |
|               |            | 36      | 0         | 23.00     | 22.95     | 23.02     |
|               |            | 36      | 19        | 23.04     | 22.97     | 23.04     |
|               |            | 36      | 39        | 22.96     | 22.91     | 22.96     |
|               |            | 75      | 0         | 23.05     | 22.92     | 22.97     |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH    | Mid CH    | High CH   |
|---------------|------------|---------|-----------|-----------|-----------|-----------|
|               |            |         |           | 39750 CH  | 40620 CH  | 41490 CH  |
|               |            |         |           | 2506.0MHz | 2593.0MHz | 2680.0MHz |
| 41 / 20M      | QPSK       | 1       | 0         | 24.76     | 24.86     | 24.93     |
|               |            | 1       | 50        | 24.86     | 24.98     | 24.86     |
|               |            | 1       | 99        | 24.83     | 24.75     | 24.68     |
|               |            | 50      | 0         | 23.88     | 23.99     | 24.01     |
|               |            | 50      | 25        | 24.06     | 24.01     | 23.98     |
|               |            | 50      | 50        | 23.91     | 23.93     | 23.90     |
|               |            | 100     | 0         | 23.95     | 23.96     | 23.93     |
|               | 16QAM      | 1       | 0         | 24.89     | 24.18     | 24.23     |
|               |            | 1       | 50        | 24.70     | 24.53     | 24.40     |
|               |            | 1       | 99        | 24.10     | 23.98     | 24.23     |
|               |            | 50      | 0         | 22.87     | 22.96     | 22.99     |
|               |            | 50      | 25        | 23.00     | 22.97     | 22.97     |
|               |            | 50      | 50        | 22.89     | 22.86     | 22.87     |
|               |            | 100     | 0         | 22.94     | 22.92     | 23.01     |

## APPENDIX B - OCCUPIED BANDWIDTH

| WCDMA Band 4 WCDMA |                 |                              |         |                 |                      |
|--------------------|-----------------|------------------------------|---------|-----------------|----------------------|
| Channel            | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 26dB Bandwidth (MHz) |
| 1312               | 1712.4          | 4.1438                       | 19957   | 1710.7          | 4.716                |
| 1413               | 1732.6          | 4.1358                       | 20175   | 1732.5          | 4.711                |
| 1513               | 1752.6          | 4.1373                       | 20393   | 1754.3          | 4.680                |



| WCDMA Band 4 HSDPA |                 |                              |         |                 |                      |
|--------------------|-----------------|------------------------------|---------|-----------------|----------------------|
| Channel            | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 26dB Bandwidth (MHz) |
| 1312               | 1712.4          | 4.1400                       | 19957   | 1710.7          | 4.730                |
| 1413               | 1732.6          | 4.1550                       | 20175   | 1732.5          | 4.736                |
| 1513               | 1752.6          | 4.1352                       | 20393   | 1754.3          | 4.701                |

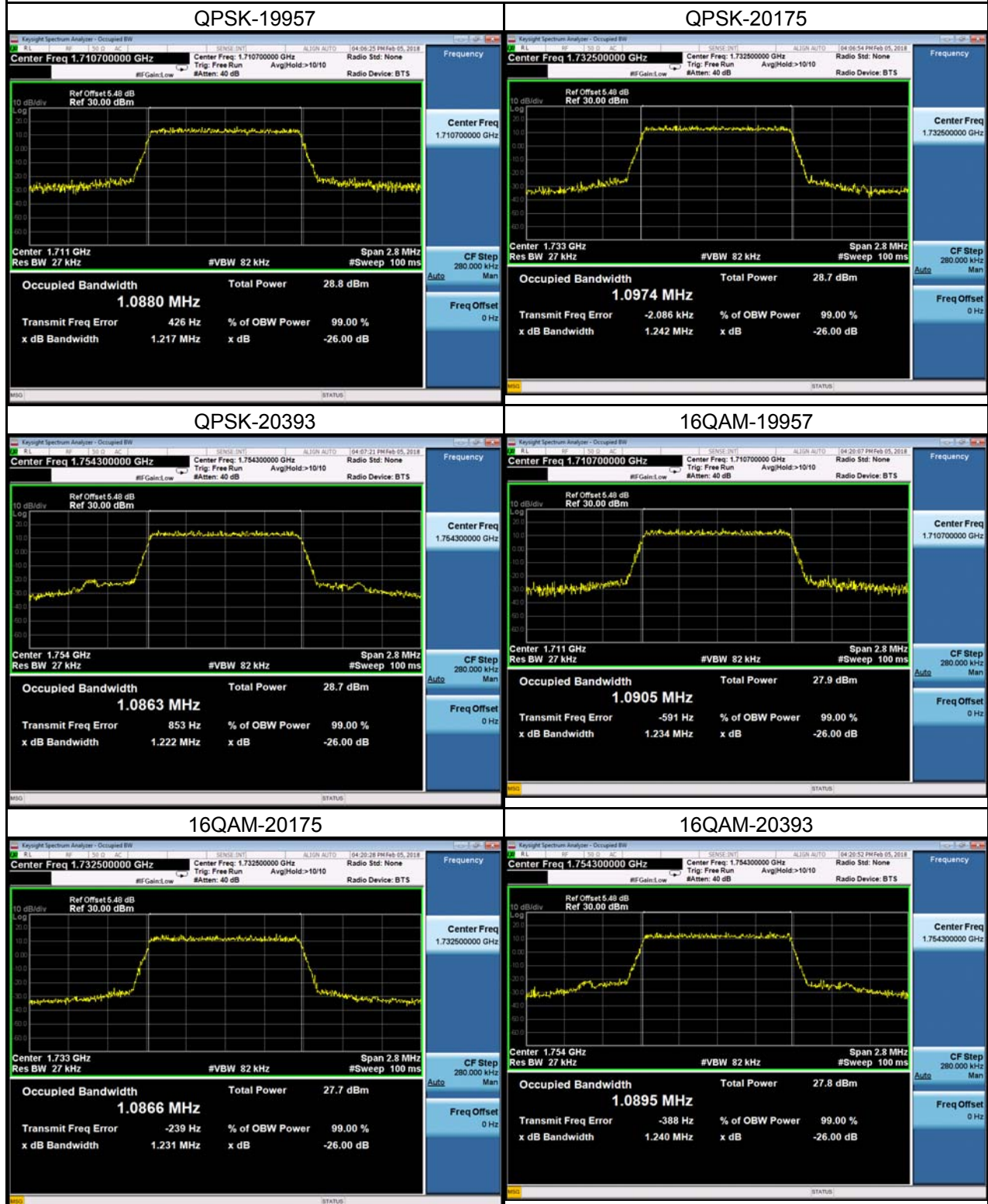


| WCDMA Band 4 HSUPA |                 |                              |         |                 |                      |
|--------------------|-----------------|------------------------------|---------|-----------------|----------------------|
| Channel            | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 26dB Bandwidth (MHz) |
| 1312               | 1712.4          | 4.1412                       | 19957   | 1710.7          | 4.732                |
| 1413               | 1732.6          | 4.1493                       | 20175   | 1732.5          | 4.714                |
| 1513               | 1752.6          | 4.1328                       | 20393   | 1754.3          | 4.721                |



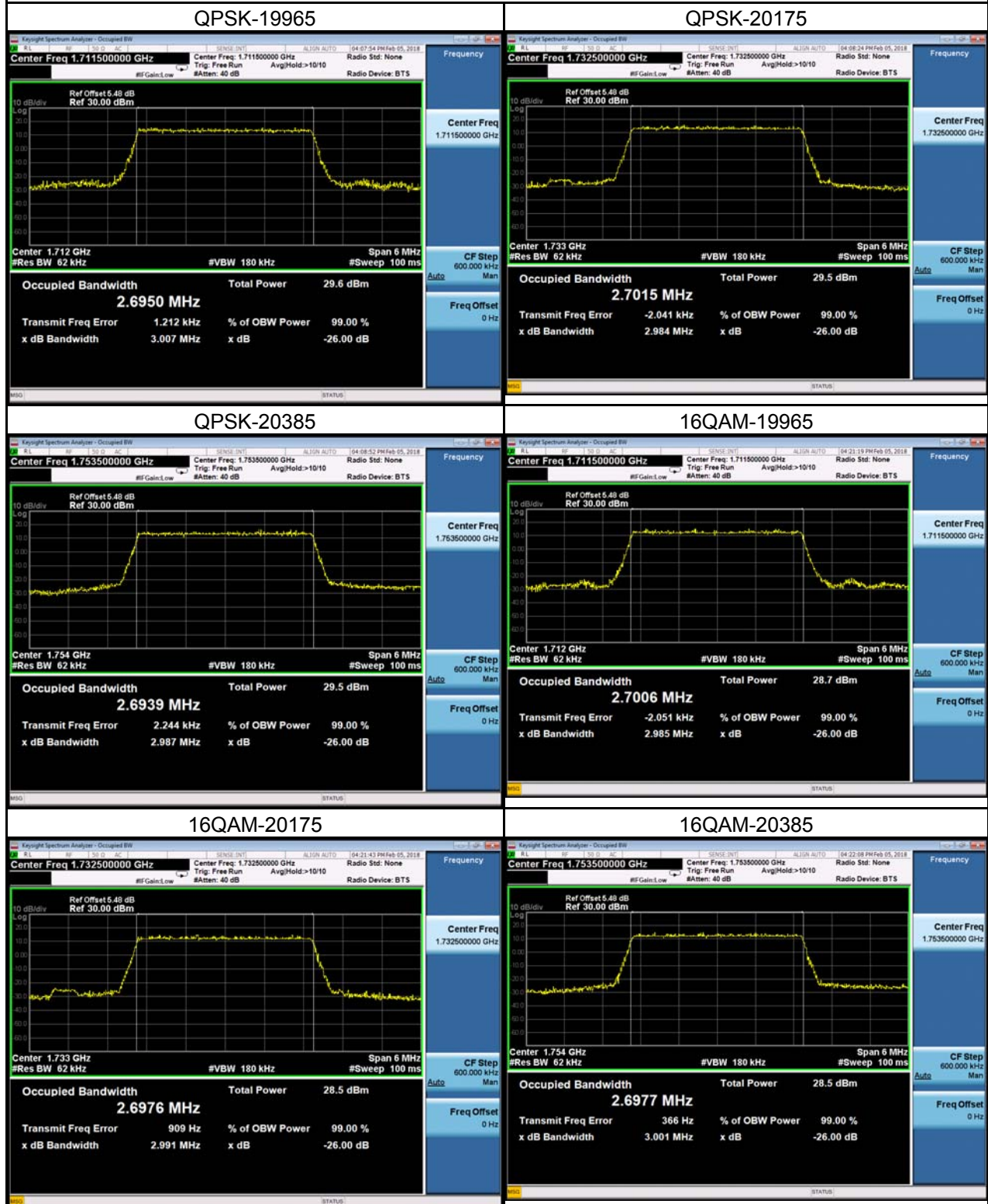
| LTE Band 4_1.4M |                 |                              |         |                 |                              |
|-----------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK            |                 |                              | 16QAM   |                 |                              |
| Channel         | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 19957           | 1710.7          | 1.0880                       | 19957   | 1710.7          | 1.0905                       |
| 20175           | 1732.5          | 1.0974                       | 20175   | 1732.5          | 1.0866                       |
| 20393           | 1754.3          | 1.0863                       | 20393   | 1754.3          | 1.0895                       |
| Channel         | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 19957           | 1710.7          | 1.217                        | 19957   | 1710.7          | 1.234                        |
| 20175           | 1732.5          | 1.242                        | 20175   | 1732.5          | 1.231                        |
| 20393           | 1754.3          | 1.222                        | 20393   | 1754.3          | 1.240                        |

# Spectrum Plot



| LTE Band 4_3M |                 |                              |         |                 |                              |
|---------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK          |                 |                              | 16QAM   |                 |                              |
| Channel       | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 19965         | 1711.5          | 2.6950                       | 19965   | 1711.5          | 2.7006                       |
| 20175         | 1732.5          | 2.7015                       | 20175   | 1732.5          | 2.6976                       |
| 20385         | 1753.5          | 2.6939                       | 20385   | 1753.5          | 2.6977                       |
| Channel       | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 19965         | 1711.5          | 3.007                        | 19965   | 1711.5          | 2.985                        |
| 20175         | 1732.5          | 2.984                        | 20175   | 1732.5          | 2.991                        |
| 20385         | 1753.5          | 2.987                        | 20385   | 1753.5          | 3.001                        |

# Spectrum Plot



| LTE Band 4_5M |                 |                              |         |                 |                              |
|---------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK          |                 |                              | 16QAM   |                 |                              |
| Channel       | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 19975         | 1712.5          | 4.5025                       | 19975   | 1712.5          | 4.4973                       |
| 20175         | 1732.5          | 4.4994                       | 20175   | 1732.5          | 4.4973                       |
| 20375         | 1752.5          | 4.5013                       | 20375   | 1752.5          | 4.5057                       |
| Channel       | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 19975         | 1712.5          | 4.968                        | 19975   | 1712.5          | 4.970                        |
| 20175         | 1732.5          | 4.916                        | 20175   | 1732.5          | 4.955                        |
| 20375         | 1752.5          | 4.957                        | 20375   | 1752.5          | 4.930                        |

# Spectrum Plot

## QPSK-19975



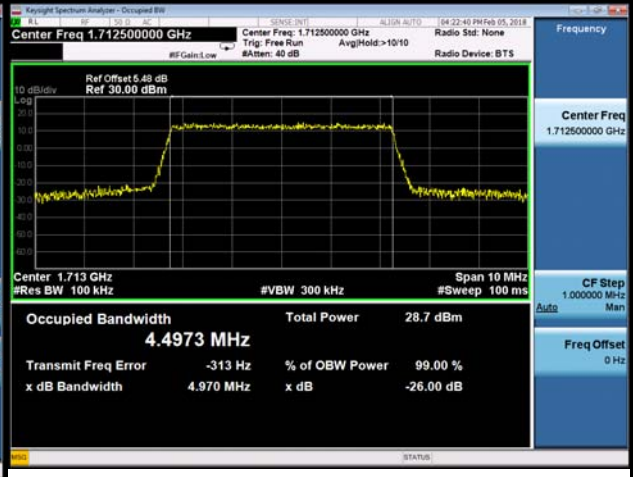
## QPSK-20175



## QPSK-20375



## 16QAM-19975



## 16QAM-20175

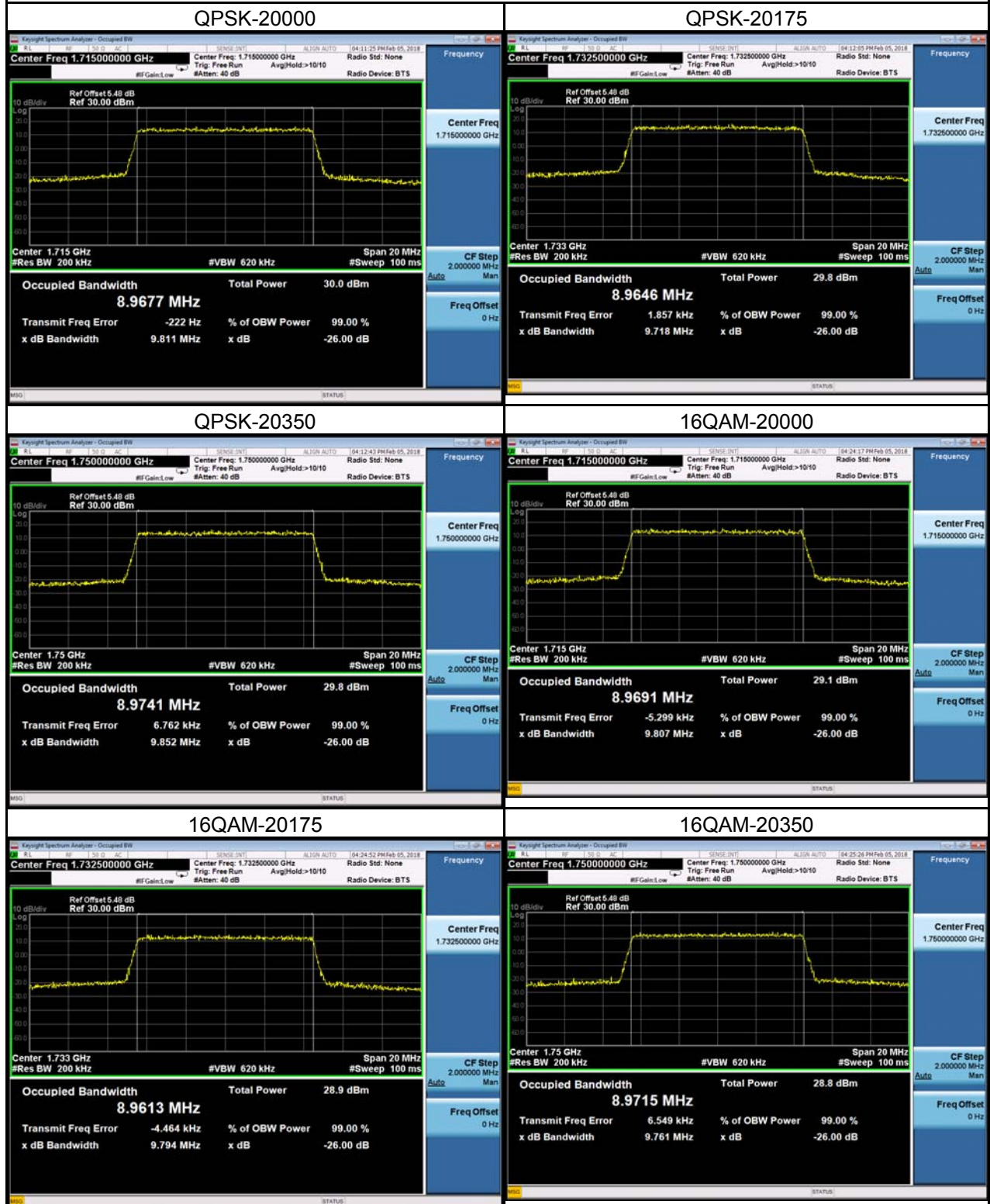


## 16QAM-20375



| LTE Band 4_10M |                 |                              |         |                 |                              |
|----------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK           |                 |                              | 16QAM   |                 |                              |
| Channel        | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 20000          | 1715            | 8.9677                       | 20000   | 1715            | 8.9691                       |
| 20175          | 1732.5          | 8.9646                       | 20175   | 1732.5          | 8.9613                       |
| 20350          | 1750            | 8.9741                       | 20350   | 1750            | 8.9715                       |
| Channel        | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 20000          | 1715            | 9.811                        | 20000   | 1715            | 9.807                        |
| 20175          | 1732.5          | 9.718                        | 20175   | 1732.5          | 9.794                        |
| 20350          | 1750            | 9.852                        | 20350   | 1750            | 9.761                        |

# Spectrum Plot



| LTE Band 4_15M |                 |                              |         |                 |                              |
|----------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK           |                 |                              | 16QAM   |                 |                              |
| Channel        | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 20025          | 1717.5          | 13.476                       | 20025   | 1717.5          | 13.498                       |
| 20175          | 1732.5          | 13.459                       | 20175   | 1732.5          | 13.438                       |
| 20325          | 1747.5          | 13.483                       | 20325   | 1747.5          | 13.475                       |
| Channel        | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 20025          | 1717.5          | 14.68                        | 20025   | 1717.5          | 14.65                        |
| 20175          | 1732.5          | 14.71                        | 20175   | 1732.5          | 14.64                        |
| 20325          | 1747.5          | 14.75                        | 20325   | 1747.5          | 14.71                        |

# Spectrum Plot



| LTE Band 4_20M |                 |                              |         |                 |                              |
|----------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK           |                 |                              | 16QAM   |                 |                              |
| Channel        | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 20050          | 1720            | 17.957                       | 20050   | 1720            | 17.951                       |
| 20175          | 1732.5          | 17.919                       | 20175   | 1732.5          | 17.927                       |
| 20300          | 1745            | 17.947                       | 20300   | 1745            | 17.970                       |
| Channel        | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 20050          | 1720            | 19.42                        | 20050   | 1720            | 19.50                        |
| 20175          | 1732.5          | 19.48                        | 20175   | 1732.5          | 19.29                        |
| 20300          | 1745            | 19.51                        | 20300   | 1745            | 19.46                        |

# Spectrum Plot



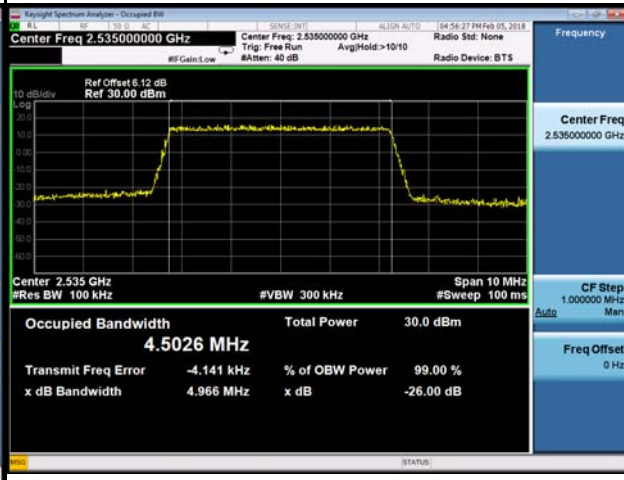
| LTE Band 7_5M |                 |                              |         |                 |                              |
|---------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK          |                 |                              | 16QAM   |                 |                              |
| Channel       | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 20775         | 2502.5          | 4.5078                       | 20775   | 2502.5          | 4.4934                       |
| 21100         | 2535            | 4.5026                       | 21100   | 2535            | 4.4970                       |
| 21425         | 2567.5          | 4.4951                       | 21425   | 2567.5          | 4.4980                       |
| Channel       | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 20775         | 2502.5          | 4.914                        | 20775   | 2502.5          | 4.921                        |
| 21100         | 2535            | 4.966                        | 21100   | 2535            | 4.934                        |
| 21425         | 2567.5          | 4.945                        | 21425   | 2567.5          | 4.930                        |

# Spectrum Plot

## QPSK-20775



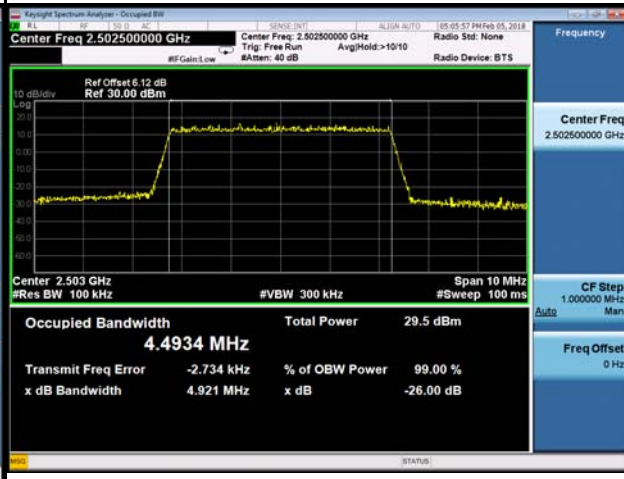
## QPSK-21100



## QPSK-21425



## 16QAM-20775



## 16QAM-21100



## 16QAM-21425



| LTE Band 7_10M |                 |                              |         |                 |                              |
|----------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK           |                 |                              | 16QAM   |                 |                              |
| Channel        | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 20800          | 2505            | 8.9761                       | 20800   | 2505            | 8.9650                       |
| 21100          | 2535            | 8.9704                       | 21100   | 2535            | 8.9556                       |
| 21400          | 2565            | 8.9771                       | 21400   | 2565            | 8.9738                       |
| Channel        | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 20800          | 2505            | 9.801                        | 20800   | 2505            | 9.780                        |
| 21100          | 2535            | 9.819                        | 21100   | 2535            | 9.829                        |
| 21400          | 2565            | 9.779                        | 21400   | 2565            | 9.812                        |

# Spectrum Plot

## QPSK-20800



## QPSK-21100



## QPSK-21400



## 16QAM-20800



## 16QAM-21100



## 16QAM-21400



| LTE Band 7_15M |                 |                              |         |                 |                              |
|----------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK           |                 |                              | 16QAM   |                 |                              |
| Channel        | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 20825          | 2507.5          | 13.458                       | 20825   | 2507.5          | 13.472                       |
| 21100          | 2535            | 13.475                       | 21100   | 2535            | 13.453                       |
| 21375          | 2562.5          | 13.453                       | 21375   | 2562.5          | 13.440                       |
| Channel        | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 20825          | 2507.5          | 14.60                        | 20825   | 2507.5          | 14.68                        |
| 21100          | 2535            | 14.62                        | 21100   | 2535            | 14.71                        |
| 21375          | 2562.5          | 14.61                        | 21375   | 2562.5          | 14.67                        |

# Spectrum Plot

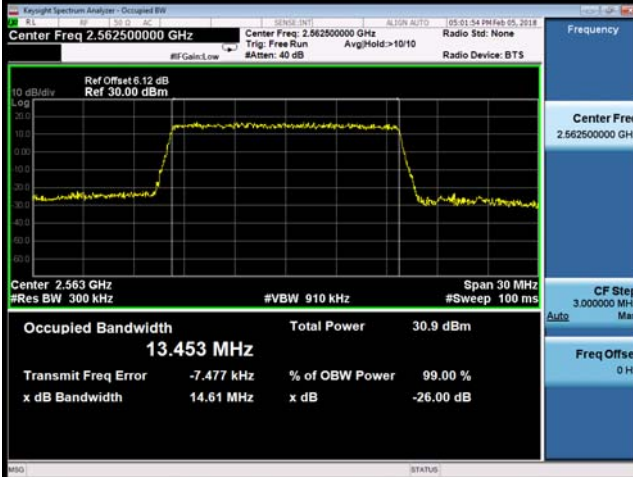
## QPSK-20825



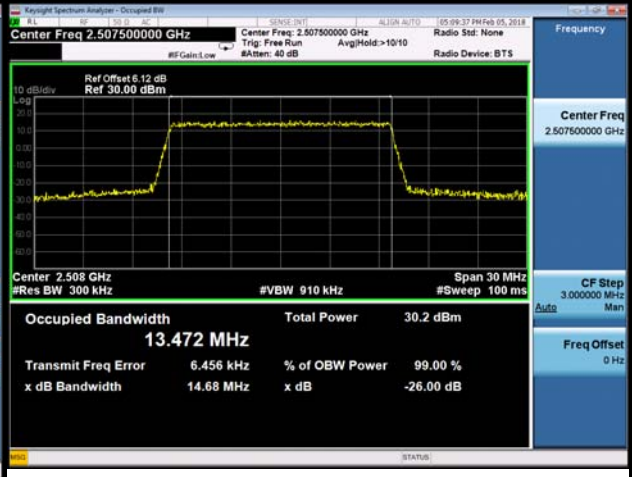
## QPSK-21100



## QPSK-21375



## 16QAM-20825



## 16QAM-21100



## 16QAM-21375



| LTE Band 7_20M |                 |                              |         |                 |                              |
|----------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK           |                 |                              | 16QAM   |                 |                              |
| Channel        | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 20850          | 2510            | 17.934                       | 20850   | 2510            | 17.938                       |
| 21100          | 2535            | 17.942                       | 21100   | 2535            | 17.928                       |
| 21350          | 2560            | 17.903                       | 21350   | 2560            | 17.953                       |
| Channel        | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 20850          | 2510            | 19.38                        | 20850   | 2510            | 19.43                        |
| 21100          | 2535            | 19.42                        | 21100   | 2535            | 19.71                        |
| 21350          | 2560            | 19.36                        | 21350   | 2560            | 19.74                        |

# Spectrum Plot



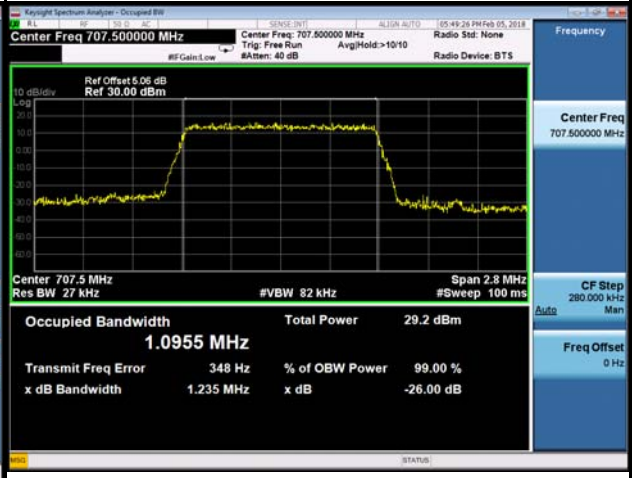
| LTE Band 12_1.4M |                 |                              |         |                 |                              |
|------------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK             |                 |                              | 16QAM   |                 |                              |
| Channel          | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 23017            | 699.7           | 1.0904                       | 23017   | 699.7           | 1.0911                       |
| 23095            | 707.5           | 1.0901                       | 23095   | 707.5           | 1.0916                       |
| 23173            | 715.3           | 1.0874                       | 23173   | 715.3           | 1.0894                       |
| Channel          | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 23017            | 699.7           | 1.229                        | 23017   | 699.7           | 1.231                        |
| 23095            | 707.5           | 1.230                        | 23095   | 707.5           | 1.230                        |
| 23173            | 715.3           | 1.228                        | 23173   | 715.3           | 1.240                        |

# Spectrum Plot

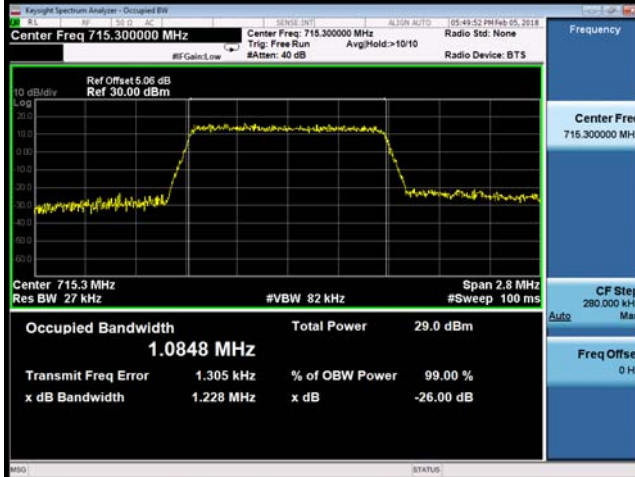
## QPSK-23017



## QPSK-23095



## QPSK-23173



## 16QAM-23017



## 16QAM-23095



## 16QAM-23173



| LTE Band 12_3M |                 |                              |         |                 |                              |
|----------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK           |                 |                              | 16QAM   |                 |                              |
| Channel        | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 23025          | 700.5           | 2.6979                       | 23025   | 700.5           | 2.6967                       |
| 23095          | 707.5           | 2.7020                       | 23095   | 707.5           | 2.7025                       |
| 23165          | 714.5           | 2.6988                       | 23165   | 714.5           | 2.6970                       |
| Channel        | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 23025          | 700.5           | 2.997                        | 23025   | 700.5           | 2.997                        |
| 23095          | 707.5           | 3.011                        | 23095   | 707.5           | 2.981                        |
| 23165          | 714.5           | 2.992                        | 23165   | 714.5           | 2.985                        |

Spectrum Plot



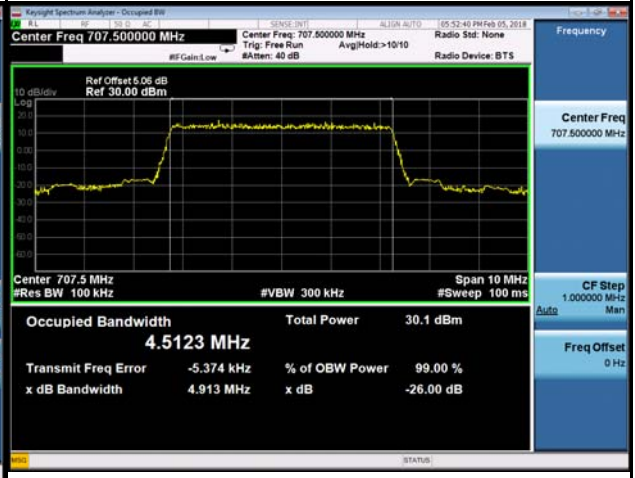
| LTE Band 12_5M |                 |                              |         |                 |                              |
|----------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK           |                 |                              | 16QAM   |                 |                              |
| Channel        | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 23035          | 701.5           | 4.5095                       | 23035   | 701.5           | 4.4993                       |
| 23095          | 707.5           | 4.5123                       | 23095   | 707.5           | 4.5031                       |
| 23155          | 713.5           | 4.5021                       | 23155   | 713.5           | 4.4944                       |
| Channel        | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 23035          | 701.5           | 4.947                        | 23035   | 701.5           | 4.924                        |
| 23095          | 707.5           | 4.913                        | 23095   | 707.5           | 4.968                        |
| 23155          | 713.5           | 4.919                        | 23155   | 713.5           | 4.880                        |

# Spectrum Plot

## QPSK-23035



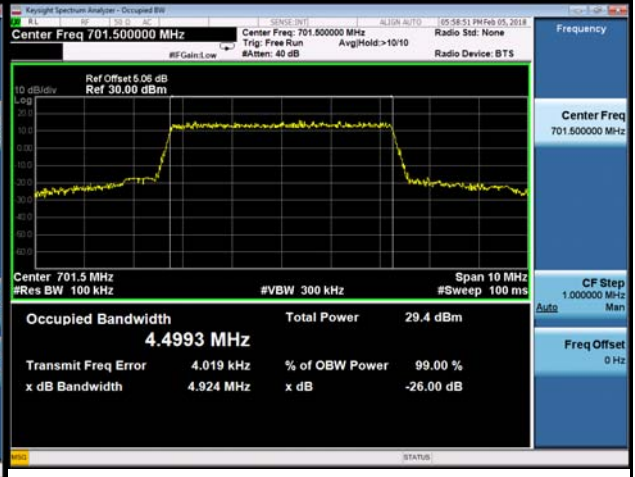
## QPSK-23095



## QPSK-23155



## 16QAM-23035



## 16QAM-23095



## 16QAM-23155



| LTE Band 12_10M |                 |                              |         |                 |                              |
|-----------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK            |                 |                              | 16QAM   |                 |                              |
| Channel         | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 23060           | 704.0           | 8.9684                       | 23060   | 704.0           | 8.9666                       |
| 23095           | 707.5           | 8.9978                       | 23095   | 707.5           | 8.9629                       |
| 23130           | 711.0           | 8.9935                       | 23130   | 711.0           | 8.9779                       |
| Channel         | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 23060           | 704.0           | 9.783                        | 23060   | 704.0           | 9.868                        |
| 23095           | 707.5           | 9.824                        | 23095   | 707.5           | 9.794                        |
| 23130           | 711.0           | 9.819                        | 23130   | 711.0           | 9.776                        |

Spectrum Plot



| LTE Band 13_5M |                 |                              |         |                 |                              |
|----------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK           |                 |                              | 16QAM   |                 |                              |
| Channel        | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 23205          | 799.5           | 4.4901                       | 23205   | 799.5           | 4.4867                       |
| 23230          | 782.0           | 4.5017                       | 23230   | 782.0           | 4.4992                       |
| 23255          | 784.5           | 4.5042                       | 23255   | 784.5           | 4.5067                       |
| Channel        | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 23205          | 706.5           | 4.932                        | 23205   | 799.5           | 4.925                        |
| 23230          | 710.0           | 4.960                        | 23230   | 782.0           | 4.953                        |
| 23255          | 713.5           | 4.937                        | 23255   | 784.5           | 4.943                        |

# Spectrum Plot

## QPSK-23205



## QPSK-23230



## QPSK-23255



## 16QAM-23205



## 16QAM-23230

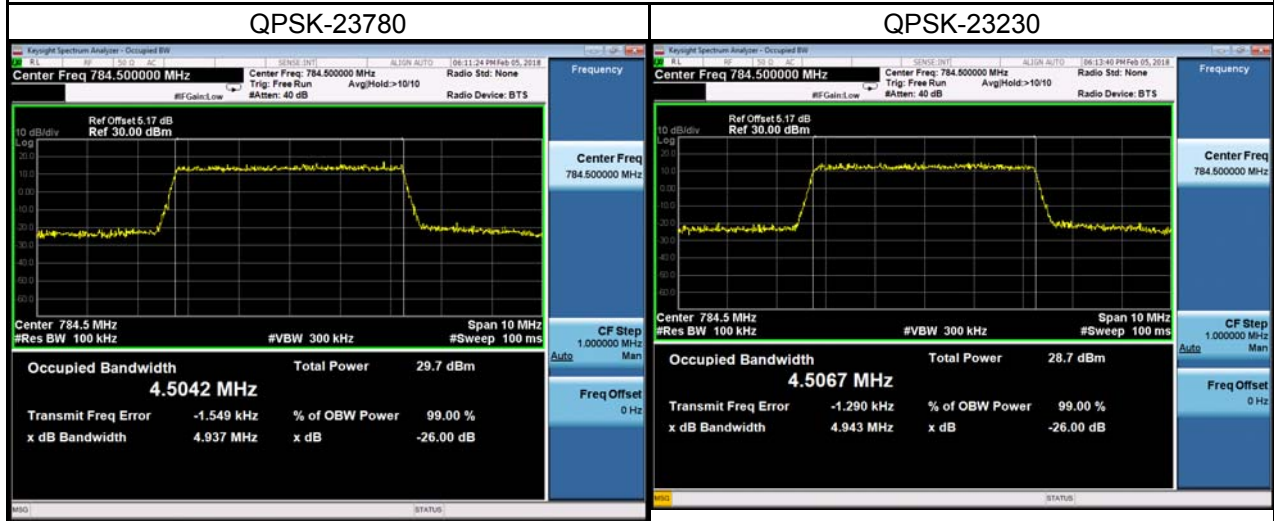


## 16QAM-23255



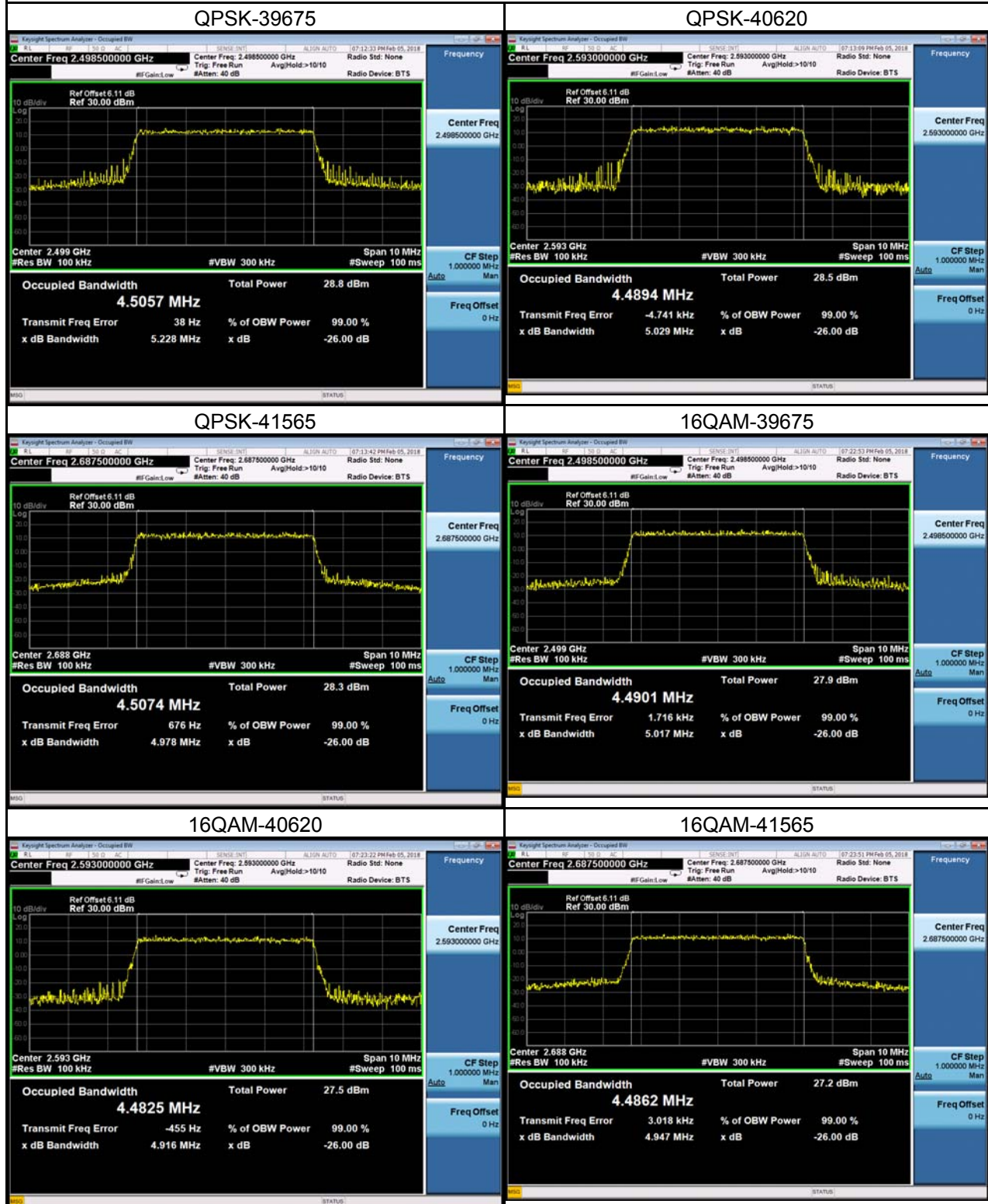
| LTE Band 13_10M |                 |                              |         |                 |                              |
|-----------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK            |                 |                              | 16QAM   |                 |                              |
| Channel         | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 23780           | 782             | 4.5042                       | 23780   | 782             | 4.5067                       |
| Channel         | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 23780           | 782             | 9.937                        | 23780   | 782             | 4.943                        |

# Spectrum Plot



| LTE Band 41_5M |                 |                              |         |                 |                              |
|----------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK           |                 |                              | 16QAM   |                 |                              |
| Channel        | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 39675          | 2498.5          | 4.5057                       | 39675   | 2498.5          | 4.4901                       |
| 40620          | 2593.0          | 4.4894                       | 40620   | 2593.0          | 4.4825                       |
| 41565          | 2687.5          | 4.5074                       | 41565   | 2687.5          | 4.4862                       |
| Channel        | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 39675          | 2498.5          | 5.228                        | 39675   | 2498.5          | 5.017                        |
| 40620          | 2593.0          | 5.029                        | 40620   | 2593.0          | 4.916                        |
| 41565          | 2687.5          | 4.978                        | 41565   | 2687.5          | 4.947                        |

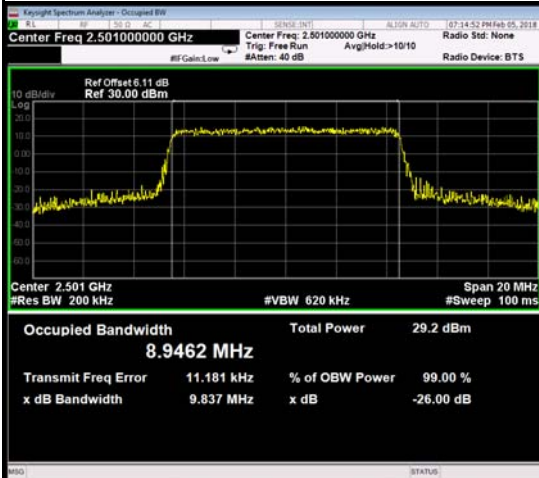
# Spectrum Plot



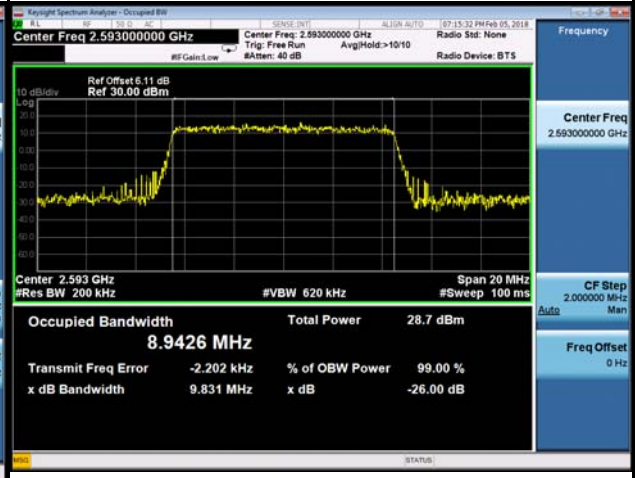
| LTE Band 41_10M |                 |                              |         |                 |                              |
|-----------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK            |                 |                              | 16QAM   |                 |                              |
| Channel         | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 39700           | 2501.0          | 8.9462                       | 39700   | 2501.0          | 8.9736                       |
| 40620           | 2593.0          | 8.9426                       | 40620   | 2593.0          | 8.9565                       |
| 41540           | 2685.0          | 8.9602                       | 41540   | 2685.0          | 8.9636                       |
| Channel         | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 39700           | 2501.0          | 9.837                        | 39700   | 2501.0          | 9.766                        |
| 40620           | 2593.0          | 9.831                        | 40620   | 2593.0          | 9.752                        |
| 41540           | 2685.0          | 9.845                        | 41540   | 2685.0          | 9.807                        |

# Spectrum Plot

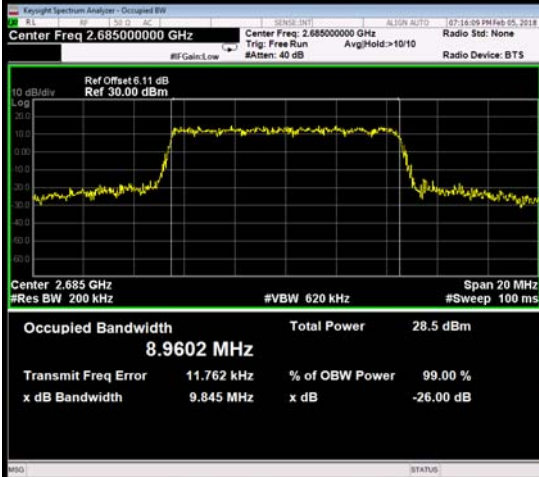
## QPSK-39700



## QPSK-40620



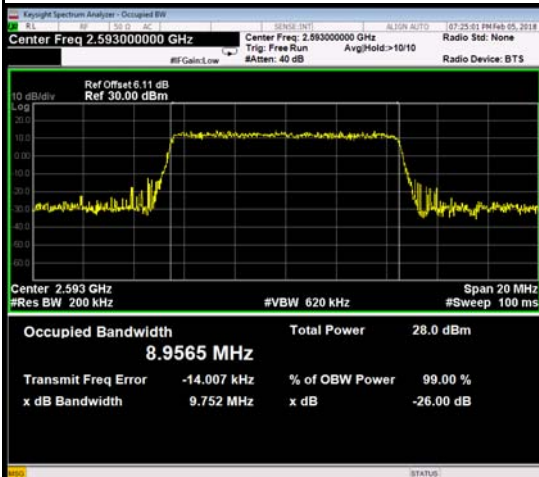
## QPSK-41540



## 16QAM-39700



## 16QAM-40620



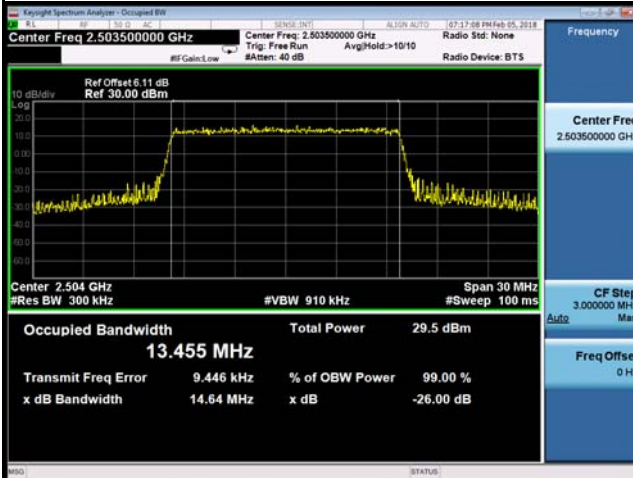
## 16QAM-41540



| LTE Band 41_15M |                 |                              |         |                 |                              |
|-----------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK            |                 |                              | 16QAM   |                 |                              |
| Channel         | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 39725           | 2503.5          | 13.455                       | 39725   | 2503.5          | 13.382                       |
| 40620           | 2593.0          | 13.449                       | 40620   | 2593.0          | 13.454                       |
| 41515           | 2682.5          | 13.413                       | 41515   | 2682.5          | 13.439                       |
| Channel         | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 39725           | 2503.5          | 14.64                        | 39725   | 2503.5          | 14.78                        |
| 40620           | 2593.0          | 15.06                        | 40620   | 2593.0          | 15.46                        |
| 41515           | 2682.5          | 15.52                        | 41515   | 2682.5          | 14.65                        |

# Spectrum Plot

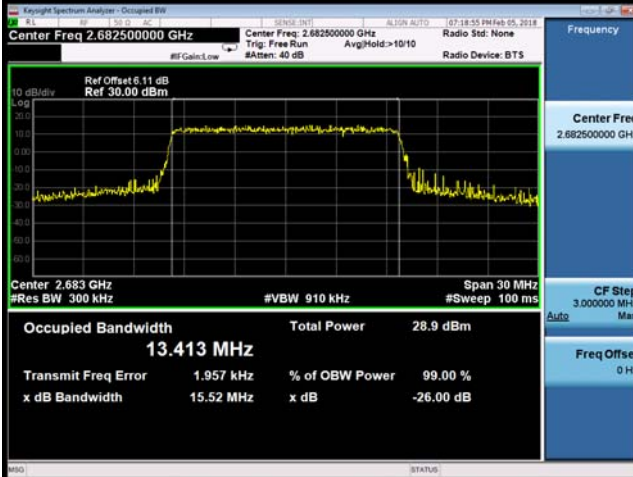
## QPSK-39725



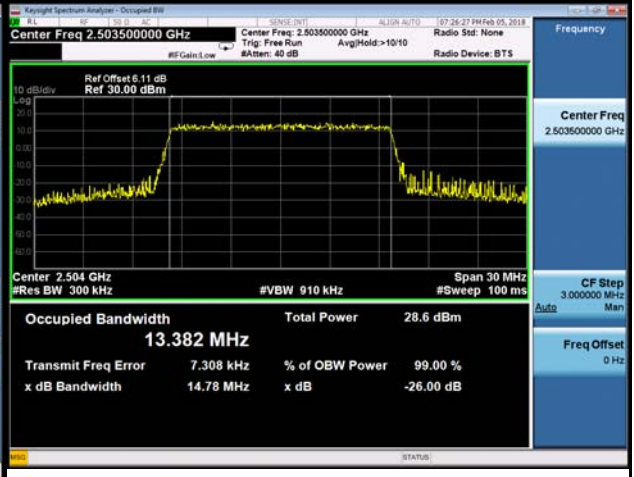
## QPSK-40620



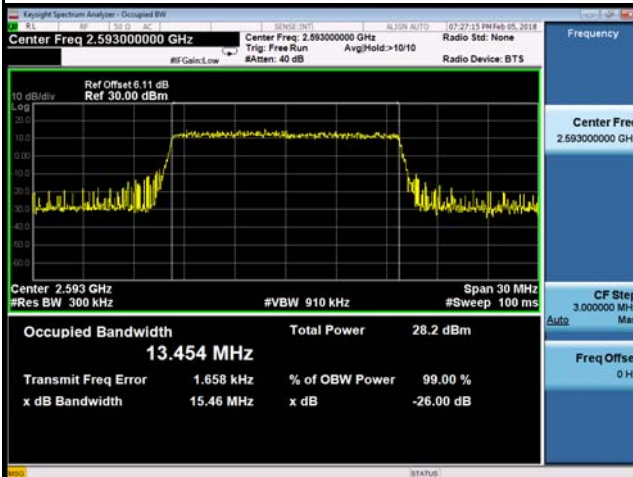
## QPSK-41515



## 16QAM-39725



## 16QAM-40620



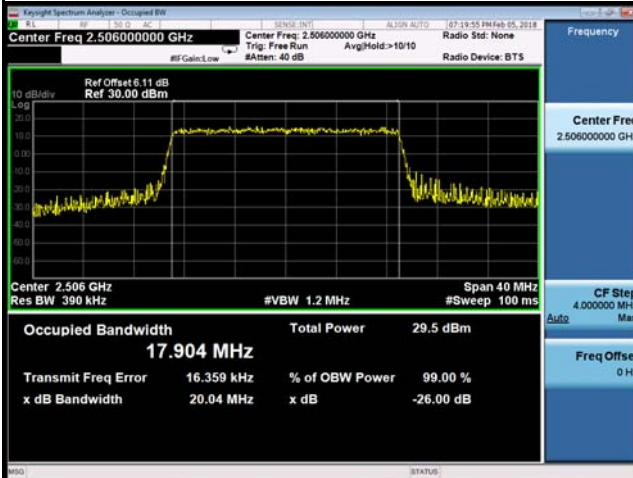
## 16QAM-41515



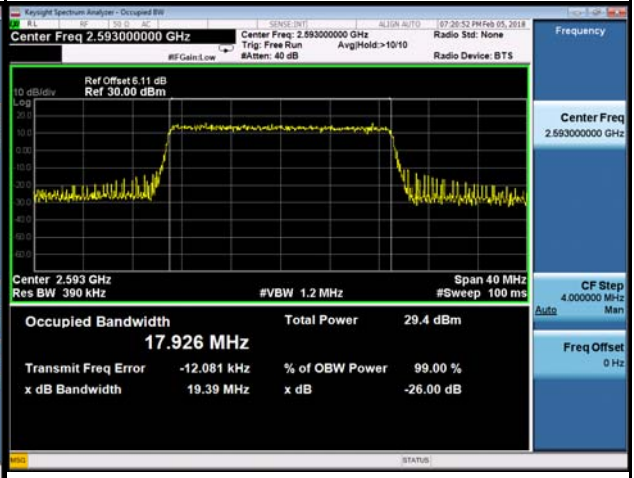
| LTE Band 41_20M |                 |                              |         |                 |                              |
|-----------------|-----------------|------------------------------|---------|-----------------|------------------------------|
| QPSK            |                 |                              | 16QAM   |                 |                              |
| Channel         | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 39750           | 2506.0          | 17.904                       | 39750   | 2506.0          | 17.887                       |
| 40620           | 2593.0          | 17.926                       | 40620   | 2593.0          | 17.903                       |
| 41490           | 2680.0          | 17.913                       | 41490   | 2680.0          | 17.935                       |
| Channel         | Frequency (MHz) | 26dB Bandwidth (MHz)         | Channel | Frequency (MHz) | 26dB Bandwidth (MHz)         |
| 39750           | 2506.0          | 21.04                        | 39750   | 2506.0          | 21.42                        |
| 40620           | 2593.0          | 19.39                        | 40620   | 2593.0          | 19.79                        |
| 41490           | 2680.0          | 19.47                        | 41490   | 2680.0          | 19.63                        |

# Spectrum Plot

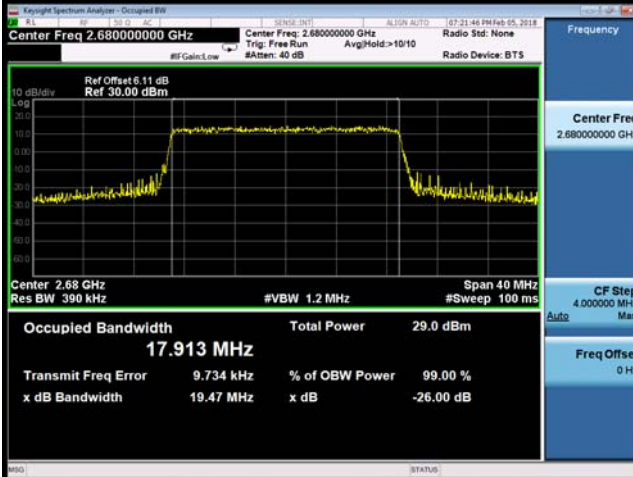
## QPSK-39750



## QPSK-40620



## QPSK-41490



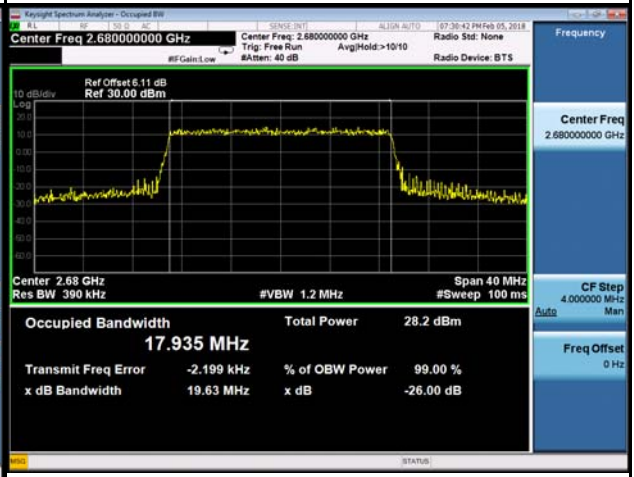
## 16QAM-39750



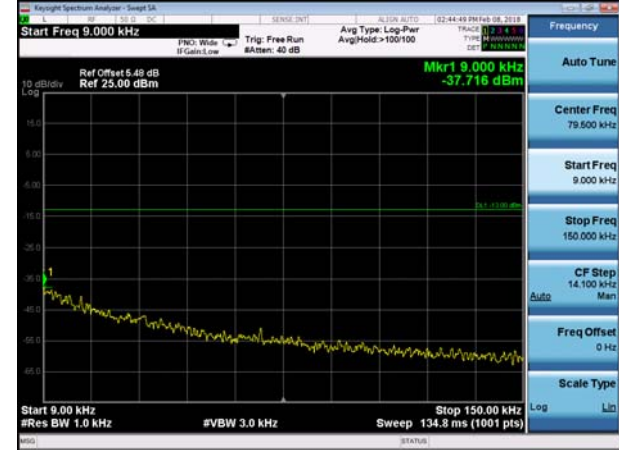
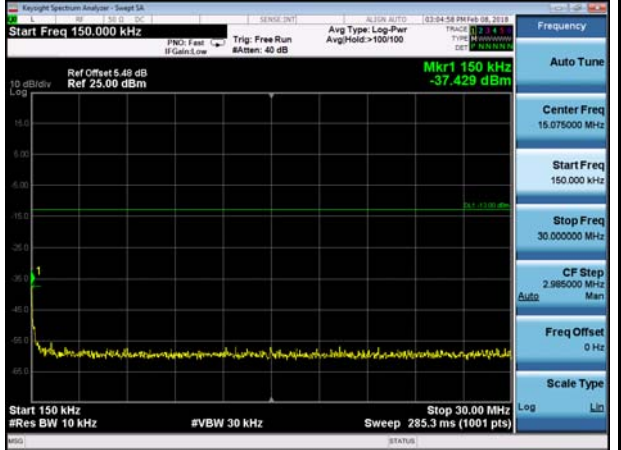
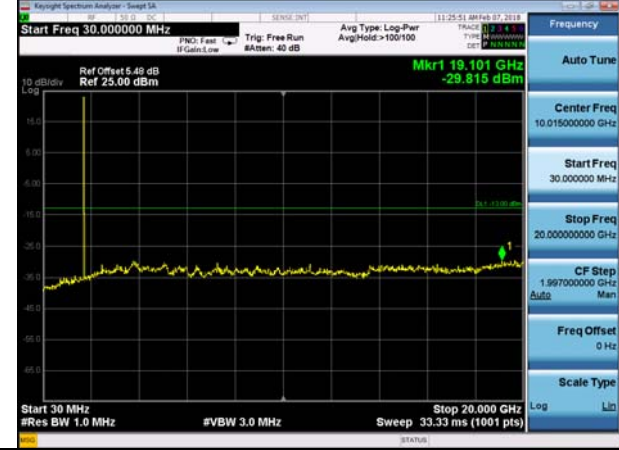
## 16QAM-40620



## 16QAM-41490



## APPENDIX C - CONDUCTED EMISSIONS

| WCDMA Band 4_WCDMA                                                                 |                |                                                                                    |                |
|------------------------------------------------------------------------------------|----------------|------------------------------------------------------------------------------------|----------------|
| Channel                                                                            | Frequency(MHz) | Channel                                                                            | Frequency(MHz) |
| 1413                                                                               | 1732.6         | 1413                                                                               | 1732.6         |
|   |                |  |                |
| Channel                                                                            | Frequency(MHz) | -                                                                                  | -              |
| 1413                                                                               | 1732.6         | -                                                                                  | -              |
|  |                |                                                                                    |                |