

# FCC SAR TEST REPORT

FCC ID : PKRISGM2000B  
Equipment : Wireless Hotspot Modem  
Brand Name : Inseego  
Model Name : M2000B  
Marketing Name : M2000  
Applicant : Inseego Corporation  
9710 Scranton Road Suite 200, San Diego, CA 92121  
Manufacturer : Inseego Corporation  
9710 Scranton Road Suite 200, San Diego, CA 92121  
Standard : FCC 47 CFR Part 2 (2.1093)

The product was received on Jul. 31, 2020 and testing was started from Aug. 04, 2018 and completed on Sep. 14, 2020. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample provide by manufacturer and the test data has been evaluated in accordance with the test procedures given in 47 CFR Part 2.1093 and FCC KDB and has been pass the FCC requirement.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Cona Huang / Deputy Manager

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## History of this test report

| Report No.   | Version | Description             | Issued Date   |
|--------------|---------|-------------------------|---------------|
| FA041658-01A | 01      | Initial issue of report | Sep. 18, 2020 |
|              |         |                         |               |
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## 1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Inseego Corporation, Wireless Hotspot Modem, M2000B, are as follows.

| Equipment Class  | Frequency Band   | Highest SAR Summary       | Highest Simultaneous Transmission<br>1g SAR (W/kg) |
|------------------|------------------|---------------------------|----------------------------------------------------|
|                  |                  | Body<br>(Separation 10mm) |                                                    |
|                  |                  | 1g SAR (W/kg)             |                                                    |
| Licensed         | WCDMA II         | 0.80                      | 1.52                                               |
|                  | WCDMA IV         | 0.99                      |                                                    |
|                  | WCDMA V          | 0.91                      |                                                    |
|                  | LTE Band 2       | 0.91                      |                                                    |
|                  | LTE Band 7       | 1.00                      |                                                    |
|                  | LTE Band 12 / 17 | 0.85                      |                                                    |
|                  | LTE Band 13      | 0.81                      |                                                    |
|                  | LTE Band 14      | 0.82                      |                                                    |
|                  | LTE Band 2 / 25  | 0.91                      |                                                    |
|                  | LTE Band 5 / 26  | 0.87                      |                                                    |
|                  | LTE Band 30      | 0.88                      |                                                    |
|                  | LTE Band 38 / 41 | 0.99                      |                                                    |
|                  | LTE Band 48      | 0.64                      |                                                    |
|                  | LTE Band 4 / 66  | 0.97                      |                                                    |
|                  | LTE Band 71      | 0.77                      |                                                    |
|                  | FR1 n2 / n25     | 0.86                      |                                                    |
|                  | FR1 n41          | 0.94                      |                                                    |
|                  | FR1 n66          | 0.94                      |                                                    |
|                  | FR1 n71          | 0.87                      |                                                    |
| Date of Testing: |                  | 2020/8/4 ~ 2020/9/14      |                                                    |

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test. This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.

**Reviewed by: Jason Wang**  
**Report Producer: Daisy Peng**



## **2. Guidance Applied**

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards, if the KDB standards were not list within TAF approval, because it is include in the FCC KDB 447498.

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01

### **3. Equipment Under Test (EUT) Information**

#### **3.1 General Information**

| Product Feature & Specification                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Equipment Name                                                                                                                                                                                                                                                   | Wireless Hotspot Modem                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Brand Name                                                                                                                                                                                                                                                       | Inseego                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Model Name                                                                                                                                                                                                                                                       | M2000B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Marketing Name                                                                                                                                                                                                                                                   | M2000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| FCC ID                                                                                                                                                                                                                                                           | PKRISGM2000B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| IMEI Code                                                                                                                                                                                                                                                        | 990016250003140                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Wireless Technology and Frequency Range                                                                                                                                                                                                                          | WCDMA Band II: 1850 MHz ~ 1910 MHz<br>WCDMA Band IV: 1710 MHz ~ 1755 MHz<br>WCDMA Band V: 824 MHz ~ 849 MHz<br>LTE Band 2: 1850 MHz ~ 1910 MHz<br>LTE Band 4: 1710 MHz ~ 1755 MHz<br>LTE Band 5: 824 MHz ~ 849 MHz<br>LTE Band 7: 2500 MHz ~ 2570 MHz<br>LTE Band 12: 699 MHz ~ 716 MHz<br>LTE Band 13: 777 MHz ~ 787 MHz<br>LTE Band 14: 788 MHz ~ 798 MHz<br>LTE Band 17: 704 MHz ~ 716 MHz<br>LTE Band 25: 1850 MHz ~ 1915 MHz<br>LTE Band 26: 814 MHz ~ 849 MHz<br>LTE Band 30: 2305 MHz ~ 2315 MHz<br>LTE Band 38: 2570 MHz ~ 2620 MHz<br>LTE Band 41: 2496 MHz ~ 2690 MHz<br>LTE Band 48: 3550 MHz ~ 3700 MHz<br>LTE Band 66: 1710 MHz ~ 1780 MHz<br>LTE Band 71: 663 MHz ~ 698 MHz<br>5G NR n2 : 1850 MHz ~ 1910 MHz<br>5G NR n25 : 1850 MHz ~ 1915 MHz<br>5G NR n41 : 2496 MHz ~ 2690 MHz<br>5G NR n66 : 1710 MHz ~ 1780 MHz<br>5G NR n71 : 663 MHz ~ 698 MHz<br>WLAN 2.4GHz Band: 2400 MHz ~ 2483.5 MHz<br>WLAN 5.2GHz Band: 5150 MHz ~ 5250 MHz<br>WLAN 5.8GHz Band: 5725 MHz ~ 5825 MHz |
| Mode                                                                                                                                                                                                                                                             | RMC/AMR 12.2Kbps<br>HSDPA<br>HSUPA<br>DC-HSDPA<br>LTE: QPSK, 16QAM, 64QAM, 256QAM<br>5G NR: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM<br>WLAN: 802.11a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| EUT Stage                                                                                                                                                                                                                                                        | Production Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Remark:</b><br>1. There are two batteries selected battery 1 as the main testing and battery 2 will select worst case found in battery 1 performs.<br>2. The WLAN SAR result is referring to RF exposure lab SAR evaluation report, report no.: SAR.20200804. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| Battery Information |              |                               |            |        |
|---------------------|--------------|-------------------------------|------------|--------|
| Battery 1           | Brand Name   | Inseego                       |            |        |
|                     | Manufacturer | Ningbo Veken Battery Co., Ltd | Model Name | 160007 |
| Battery 2           | Brand Name   | Inseego                       |            |        |
|                     | Manufacturer | Ningbo Veken Battery Co., Ltd | Model Name | 160006 |



### 3.2 General LTE SAR Test and Reporting Considerations

| Summarized necessary items addressed in KDB 941225 D05 v02r05           |                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       |        |                                                                         |        |          |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
|-------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------|-------------------------------------------------------------------------|--------|----------|--|--|--|--|--|------------|---------------------------------------------------------------|--|--|--|--|--|----------|---------|---------|-------|--------|--------|--------|------|-----|-----|-----|------|------|------|-----|--------|-----|-----|-----|------|------|------|-----|--------|-----|-----|-----|------|------|------|-----|--------|-----|-----|-----|------|------|------|-----|--------|-----|-----|-----|------|------|------|-----|---------|-----|--|--|--|--|--|-----|
| FCC ID                                                                  |                                                               | PKRISGM2000B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |        |                                                                         |        |          |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| Equipment Name                                                          |                                                               | Wireless Hotspot Modem                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |        |                                                                         |        |          |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| Operating Frequency Range of each LTE transmission band                 |                                                               | LTE Band 2: 1850 MHz ~ 1910 MHz<br>LTE Band 4: 1710 MHz ~ 1755 MHz<br>LTE Band 5: 824 MHz ~ 849 MHz<br>LTE Band 7: 2500 MHz ~ 2570 MHz<br>LTE Band 12: 699 MHz ~ 716 MHz<br>LTE Band 13: 777 MHz ~ 787 MHz<br>LTE Band 14: 788 MHz ~ 798 MHz<br>LTE Band 17: 704 MHz ~ 716 MHz<br>LTE Band 25: 1850 MHz ~ 1915 MHz<br>LTE Band 26: 814 MHz ~ 849 MHz<br>LTE Band 30: 2305 MHz ~ 2315 MHz<br>LTE Band 38: 2570 MHz ~ 2620 MHz<br>LTE Band 41: 2496 MHz ~ 2690 MHz<br>LTE Band 48: 3550 MHz ~ 3700 MHz<br>LTE Band 66: 1710 MHz ~ 1780 MHz<br>LTE Band 71: 663 MHz ~ 698 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |        |                                                                         |        |          |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| Channel Bandwidth                                                       |                                                               | LTE Band 02:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 04:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 05:1.4MHz, 3MHz, 5MHz, 10MHz<br>LTE Band 07: 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz<br>LTE Band 13: 5MHz, 10MHz<br>LTE Band 14: 5MHz, 10MHz<br>LTE Band 17: 5MHz, 10MHz<br>LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz<br>LTE Band 30: 5MHz, 10MHz<br>LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 71: 5MHz, 10MHz, 15MHz, 20MHz                                                                                                                                                                                                                                                                                                                                                                              |       |        |                                                                         |        |          |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| uplink modulations used                                                 |                                                               | QPSK / 16QAM / 64QAM / 256QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |        |                                                                         |        |          |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| LTE Voice / Data requirements                                           |                                                               | Data only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |        |                                                                         |        |          |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| LTE MPR permanently built-in by design                                  |                                                               | <table><tr><th colspan="8">Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</th></tr><tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (N<sub>RB</sub>)</th><th rowspan="2">MPR (dB)</th></tr><tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr><tr><td>QPSK</td><td>&gt; 5</td><td>&gt; 4</td><td>&gt; 8</td><td>&gt; 12</td><td>&gt; 16</td><td>&gt; 18</td><td>≤ 1</td></tr><tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr><tr><td>16 QAM</td><td>&gt; 5</td><td>&gt; 4</td><td>&gt; 8</td><td>&gt; 12</td><td>&gt; 16</td><td>&gt; 18</td><td>≤ 2</td></tr><tr><td>64 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 2</td></tr><tr><td>64 QAM</td><td>&gt; 5</td><td>&gt; 4</td><td>&gt; 8</td><td>&gt; 12</td><td>&gt; 16</td><td>&gt; 18</td><td>≤ 3</td></tr><tr><td>256 QAM</td><td colspan="6">≥ 1</td><td>≤ 5</td></tr></table> |       |        | Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3 |        |          |  |  |  |  |  | Modulation | Channel bandwidth / Transmission bandwidth (N <sub>RB</sub> ) |  |  |  |  |  | MPR (dB) | 1.4 MHz | 3.0 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | QPSK | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 1 | 16 QAM | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | ≤ 1 | 16 QAM | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 2 | 64 QAM | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | ≤ 2 | 64 QAM | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 3 | 256 QAM | ≥ 1 |  |  |  |  |  | ≤ 5 |
| Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3 |                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       |        |                                                                         |        |          |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| Modulation                                                              | Channel bandwidth / Transmission bandwidth (N <sub>RB</sub> ) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       |        |                                                                         |        | MPR (dB) |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
|                                                                         | 1.4 MHz                                                       | 3.0 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 5 MHz | 10 MHz | 15 MHz                                                                  | 20 MHz |          |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| QPSK                                                                    | > 5                                                           | > 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | > 8   | > 12   | > 16                                                                    | > 18   | ≤ 1      |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| 16 QAM                                                                  | ≤ 5                                                           | ≤ 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ≤ 8   | ≤ 12   | ≤ 16                                                                    | ≤ 18   | ≤ 1      |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| 16 QAM                                                                  | > 5                                                           | > 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | > 8   | > 12   | > 16                                                                    | > 18   | ≤ 2      |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| 64 QAM                                                                  | ≤ 5                                                           | ≤ 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ≤ 8   | ≤ 12   | ≤ 16                                                                    | ≤ 18   | ≤ 2      |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| 64 QAM                                                                  | > 5                                                           | > 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | > 8   | > 12   | > 16                                                                    | > 18   | ≤ 3      |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| 256 QAM                                                                 | ≥ 1                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       |        |                                                                         |        | ≤ 5      |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| LTE A-MPR                                                               |                                                               | In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |        |                                                                         |        |          |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| Spectrum plots for RB configuration                                     |                                                               | A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |        |                                                                         |        |          |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| LTE Carrier Aggregation Combinations                                    |                                                               | Intra-Band possible combinations and the detail power measurement please referred to section 12.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |        |                                                                         |        |          |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| LTE Carrier Aggregation Additional Information                          |                                                               | 1. This device supports LTE Carrier Aggregation (CA) in the uplink for LTE B41/B48 with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |        |                                                                         |        |          |  |  |  |  |  |            |                                                               |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |

| Transmission (H, M, L) channel numbers and frequencies in each LTE band |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |  |  |
|-------------------------------------------------------------------------|-------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|--|--|
| LTE Band 2                                                              |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Bandwidth 1.4 MHz |             | Bandwidth 3 MHz  |             | Bandwidth 5 MHz  |             | Bandwidth 10 MHz |             | Bandwidth 15 MHz |             | Bandwidth 20 MHz |             |  |  |
|                                                                         | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |  |  |
| L                                                                       | 18607             | 1850.7      | 18615            | 1851.5      | 18625            | 1852.5      | 18650            | 1855        | 18675            | 1857.5      | 18700            | 1860        |  |  |
| M                                                                       | 18900             | 1880        | 18900            | 1880        | 18900            | 1880        | 18900            | 1880        | 18900            | 1880        | 18900            | 1880        |  |  |
| H                                                                       | 19193             | 1909.3      | 19185            | 1908.5      | 19175            | 1907.5      | 19150            | 1905        | 19125            | 1902.5      | 19100            | 1900        |  |  |
| LTE Band 4                                                              |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Bandwidth 1.4 MHz |             | Bandwidth 3 MHz  |             | Bandwidth 5 MHz  |             | Bandwidth 10 MHz |             | Bandwidth 15 MHz |             | Bandwidth 20 MHz |             |  |  |
|                                                                         | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |  |  |
| L                                                                       | 19957             | 1710.7      | 19965            | 1711.5      | 19975            | 1712.5      | 20000            | 1715        | 20025            | 1717.5      | 20050            | 1720        |  |  |
| M                                                                       | 20175             | 1732.5      | 20175            | 1732.5      | 20175            | 1732.5      | 20175            | 1732.5      | 20175            | 1732.5      | 20175            | 1732.5      |  |  |
| H                                                                       | 20393             | 1754.3      | 20385            | 1753.5      | 20375            | 1752.5      | 20350            | 1750        | 20325            | 1747.5      | 20300            | 1745        |  |  |
| LTE Band 5                                                              |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Bandwidth 1.4 MHz |             | Bandwidth 3 MHz  |             | Bandwidth 5 MHz  |             | Bandwidth 10 MHz |             |                  |             |                  |             |  |  |
|                                                                         | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |  |  |
| L                                                                       | 20407             | 824.7       | 20415            | 825.5       | 20425            | 826.5       | 20450            | 829         |                  |             |                  |             |  |  |
| M                                                                       | 20525             | 836.5       | 20525            | 836.5       | 20525            | 836.5       | 20525            | 836.5       |                  |             |                  |             |  |  |
| H                                                                       | 20643             | 848.3       | 20635            | 847.5       | 20625            | 846.5       | 20600            | 844         |                  |             |                  |             |  |  |
| LTE Band 7                                                              |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Bandwidth 5 MHz   |             | Bandwidth 10 MHz |             | Bandwidth 15 MHz |             | Bandwidth 20 MHz |             |                  |             |                  |             |  |  |
|                                                                         | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |  |  |
| L                                                                       | 20775             | 2502.5      | 20800            | 2505        | 20825            | 2507.5      | 20850            | 2510        |                  |             |                  |             |  |  |
| M                                                                       | 21100             | 2535        | 21100            | 2535        | 21100            | 2535        | 21100            | 2535        |                  |             |                  |             |  |  |
| H                                                                       | 21425             | 2567.5      | 21400            | 2565        | 21375            | 2562.5      | 21350            | 2560        |                  |             |                  |             |  |  |
| LTE Band 12                                                             |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Bandwidth 1.4 MHz |             | Bandwidth 3 MHz  |             | Bandwidth 5 MHz  |             | Bandwidth 10 MHz |             |                  |             |                  |             |  |  |
|                                                                         | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |  |  |
| L                                                                       | 23017             | 699.7       | 23025            | 700.5       | 23035            | 701.5       | 23060            | 704         |                  |             |                  |             |  |  |
| M                                                                       | 23095             | 707.5       | 23095            | 707.5       | 23095            | 707.5       | 23095            | 707.5       |                  |             |                  |             |  |  |
| H                                                                       | 23173             | 715.3       | 23165            | 714.5       | 23155            | 713.5       | 23130            | 711         |                  |             |                  |             |  |  |
| LTE Band 13                                                             |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Bandwidth 5 MHz   |             |                  |             | Bandwidth 10 MHz |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Channel #         |             | Freq.(MHz)       |             | Channel #        |             | Freq.(MHz)       |             |                  |             |                  |             |  |  |
| L                                                                       | 23205             |             | 779.5            |             | 23230            |             | 782              |             |                  |             |                  |             |  |  |
| M                                                                       | 23230             |             | 782              |             |                  |             |                  |             |                  |             |                  |             |  |  |
| H                                                                       | 23255             |             | 784.5            |             |                  |             |                  |             |                  |             |                  |             |  |  |
| LTE Band 14                                                             |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Bandwidth 5 MHz   |             |                  |             | Bandwidth 10 MHz |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Channel #         |             | Channel #        |             | Channel #        |             | Freq.(MHz)       |             |                  |             |                  |             |  |  |
| L                                                                       | 23305             |             | 790.5            |             | 23330            |             | 793              |             |                  |             |                  |             |  |  |
| M                                                                       | 23330             |             | 793              |             |                  |             |                  |             |                  |             |                  |             |  |  |
| H                                                                       | 23355             |             | 795.5            |             |                  |             |                  |             |                  |             |                  |             |  |  |
|                                                                         |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |  |  |
| LTE Band 17                                                             |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Bandwidth 5 MHz   |             |                  |             | Bandwidth 10 MHz |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Channel #         |             | Freq.(MHz)       |             | Channel #        |             | Freq. (MHz)      |             |                  |             |                  |             |  |  |
| L                                                                       | 23755             |             | 706.5            |             | 23780            |             | 709              |             |                  |             |                  |             |  |  |
| M                                                                       | 23790             |             | 710              |             | 23790            |             | 710              |             |                  |             |                  |             |  |  |
| H                                                                       | 23825             |             | 713.5            |             | 23800            |             | 711              |             |                  |             |                  |             |  |  |

| LTE Band 25 |                   |             |                  |             |                  |                  |                  |             |                  |             |                  |             |
|-------------|-------------------|-------------|------------------|-------------|------------------|------------------|------------------|-------------|------------------|-------------|------------------|-------------|
|             | Bandwidth 1.4 MHz |             | Bandwidth 3 MHz  |             | Bandwidth 5 MHz  |                  | Bandwidth 10 MHz |             | Bandwidth 15 MHz |             | Bandwidth 20 MHz |             |
|             | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz)      | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |
| L           | 26047             | 1850.7      | 26055            | 1851.5      | 26065            | 1852.5           | 26090            | 1855        | 26115            | 1857.5      | 26140            | 1860        |
| M           | 26340             | 1880        | 26340            | 1880        | 26340            | 1880             | 26340            | 1880        | 26340            | 1880        | 26340            | 1880        |
| H           | 26683             | 1914.3      | 26675            | 1913.5      | 26665            | 1912.5           | 26640            | 1910        | 26615            | 1907.5      | 26590            | 1905        |
| LTE Band 26 |                   |             |                  |             |                  |                  |                  |             |                  |             |                  |             |
|             | Bandwidth 1.4 MHz |             | Bandwidth 3 MHz  |             | Bandwidth 5 MHz  |                  | Bandwidth 10 MHz |             | Bandwidth 15 MHz |             |                  |             |
|             | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz)      | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |
| L           | 26697             | 814.7       | 26705            | 815.5       | 26715            | 816.5            | 26740            | 819         | 26765            | 821.5       |                  |             |
| M           | 26865             | 831.5       | 26865            | 831.5       | 26865            | 831.5            | 26865            | 831.5       | 26865            | 831.5       |                  |             |
| H           | 27033             | 848.3       | 27025            | 847.5       | 27015            | 846.5            | 26990            | 844         | 26965            | 841.5       |                  |             |
| LTE Band 30 |                   |             |                  |             |                  |                  |                  |             |                  |             |                  |             |
|             | Bandwidth 5 MHz   |             |                  |             |                  | Bandwidth 10 MHz |                  |             |                  |             |                  |             |
|             | Channel #         |             |                  | Freq.(MHz)  |                  | Channel #        |                  |             | Freq.(MHz)       |             |                  |             |
| L           | 27685             |             |                  | 2307.5      |                  | 27710            |                  |             | 2310             |             |                  |             |
| M           | 27710             |             |                  | 2310        |                  |                  |                  |             |                  |             |                  |             |
| H           | 27735             |             |                  | 2312.5      |                  |                  |                  |             |                  |             |                  |             |
| LTE Band 38 |                   |             |                  |             |                  |                  |                  |             |                  |             |                  |             |
|             | Bandwidth 5 MHz   |             | Bandwidth 10 MHz |             | Bandwidth 15 MHz |                  | Bandwidth 20 MHz |             |                  |             |                  |             |
|             | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz)      | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |
| L           | 37775             | 2572.5      | 37800            | 2575        | 37825            | 2577.5           | 37850            | 2580        |                  |             |                  |             |
| M           | 38000             | 2595        | 38000            | 2595        | 38000            | 2595             | 38000            | 2595        |                  |             |                  |             |
| H           | 38225             | 2617.5      | 38200            | 2615        | 38175            | 2612.5           | 38150            | 2610        |                  |             |                  |             |
| LTE Band 41 |                   |             |                  |             |                  |                  |                  |             |                  |             |                  |             |
|             | Bandwidth 5 MHz   |             | Bandwidth 10 MHz |             | Bandwidth 15 MHz |                  | Bandwidth 20 MHz |             |                  |             |                  |             |
|             | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz)      | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |
| L           | 39675             | 2498.5      | 39700            | 2501        | 39725            | 2503.5           | 39750            | 2506        |                  |             |                  |             |
| L           | 40148             | 2545.8      | 40160            | 2547        | 40173            | 2548.3           | 40185            | 2549.5      |                  |             |                  |             |
| M           | 40620             | 2593        | 40620            | 2593        | 40620            | 2593             | 40620            | 2593        |                  |             |                  |             |
| H           | 41093             | 2640.3      | 41080            | 2639        | 41068            | 2637.8           | 41055            | 2636.5      |                  |             |                  |             |
| H           | 41565             | 2687.5      | 41540            | 2685        | 41515            | 2682.5           | 41490            | 2680        |                  |             |                  |             |
| LTE Band 66 |                   |             |                  |             |                  |                  |                  |             |                  |             |                  |             |
|             | Bandwidth 1.4 MHz |             | Bandwidth 3 MHz  |             | Bandwidth 5 MHz  |                  | Bandwidth 10 MHz |             | Bandwidth 15 MHz |             | Bandwidth 20 MHz |             |
|             | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz)      | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |
| L           | 131979            | 1710.7      | 131987           | 1711.5      | 131997           | 1712.5           | 132022           | 1715        | 132047           | 1717.5      | 132072           | 1720        |
| M           | 132322            | 1745        | 132322           | 1745        | 132322           | 1745             | 132322           | 1745        | 132322           | 1745        | 132322           | 1745        |
| H           | 132665            | 1779.3      | 132657           | 1778.5      | 132647           | 1777.5           | 132622           | 1775        | 132597           | 1772.5      | 132572           | 1770        |
| LTE Band 71 |                   |             |                  |             |                  |                  |                  |             |                  |             |                  |             |
|             | Bandwidth 5 MHz   |             | Bandwidth 10 MHz |             | Bandwidth 15 MHz |                  | Bandwidth 20 MHz |             |                  |             |                  |             |
|             | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz)      | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |
| L           | 133147            | 665.5       | 133172           | 668         | 133197           | 670.5            | 133222           | 673         |                  |             |                  |             |
| M           | 133297            | 680.5       | 133297           | 680.5       | 133297           | 680.5            | 133297           | 680.5       |                  |             |                  |             |
| H           | 133447            | 695.5       | 133422           | 693         | 133397           | 690.5            | 133372           | 688         |                  |             |                  |             |
| LTE Band 48 |                   |             |                  |             |                  |                  |                  |             |                  |             |                  |             |
|             | Bandwidth 5 MHz   |             | Bandwidth 10 MHz |             | Bandwidth 15 MHz |                  | Bandwidth 20 MHz |             |                  |             |                  |             |
|             | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz)      | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |
| L           | 55265             | 3552.5      | 55290            | 3555        | 55315            | 3557.5           | 55340            | 3560        |                  |             |                  |             |
| L           | 55810             | 3607        | 55815            | 3607.5      | 55820            | 3608             | 55830            | 3609        |                  |             |                  |             |
| M           | 56170             | 3643        | 56165            | 3642.5      | 56160            | 3642             | 56150            | 3641        |                  |             |                  |             |
| H           | 56715             | 3697.5      | 56690            | 3695        | 56665            | 3692.5           | 56640            | 3690        |                  |             |                  |             |

### 3.3 General 5G NR SAR Test and Reporting Considerations

| 5G NR Information                                                         |                                                                                                                                                                                                                            |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|------------------|-------------|
| FCC                                                                       | PKRISGM2000B                                                                                                                                                                                                               |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
| Equipment Name                                                            | Wireless Hotspot Modem                                                                                                                                                                                                     |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
| Operating Frequency Range of each 5G NR transmission band                 | 5G NR n2 : 1850 MHz ~ 1910 MHz<br>5G NR n25 : 1850 MHz ~ 1915 MHz<br>5G NR n41 : 2496 MHz ~ 2690 MHz<br>5G NR n66 : 1710 MHz ~ 1780 MHz<br>5G NR n71 : 663 MHz ~ 698 MHz                                                   |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
| Channel Bandwidth                                                         | 5G NR n2: 5MHz, 10MHz, 15MHz, 20MHz<br>5G NR n25: 5MHz, 10MHz, 15MHz, 20MHz<br>5G NR n41: 20MHz, 40MHz, 50MHz, 60MHz, 80MHz, 90MHz, 100MHz<br>5G NR n66: 5MHz, 10MHz, 15MHz, 20MHz<br>5G NR n71: 5MHz, 10MHz, 15MHz, 20MHz |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
| SCS                                                                       | FDD: SCS15KHz, TDD: SCS30KHz                                                                                                                                                                                               |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
| uplink modulations used                                                   | DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM<br>CP-OFDM QPSK / 16QAM / 64QAM / 256QAM                                                                                                                             |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
| A-MPR (Additional MPR) disabled for SAR Testing?                          | Yes                                                                                                                                                                                                                        |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
| LTE Anchor Bands for n2                                                   | LTE B12                                                                                                                                                                                                                    |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
| LTE Anchor Bands for n25                                                  | LTE B66                                                                                                                                                                                                                    |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
| LTE Anchor Bands for n41                                                  | LTE B2/41/66                                                                                                                                                                                                               |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
| LTE Anchor Bands for n66                                                  | LTE B52/12                                                                                                                                                                                                                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
| LTE Anchor Bands for n71                                                  | LTE B2/66                                                                                                                                                                                                                  |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
| Transmission (H, M, L) channel numbers and frequencies in each 5G NR band |                                                                                                                                                                                                                            |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
| NR Band 2                                                                 |                                                                                                                                                                                                                            |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
|                                                                           | Bandwidth 5MHz                                                                                                                                                                                                             |             | Bandwidth 10MHz |             | Bandwidth 15MHz |             | Bandwidth 20MHz |             |                 |             |                 |             |                  |             |
|                                                                           | Ch. #                                                                                                                                                                                                                      | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) |                 |             |                 |             |                  |             |
| L                                                                         | 370500                                                                                                                                                                                                                     | 1852.5      | 371000          | 1855        | 371500          | 1857.5      | 372000          | 1860        |                 |             |                 |             |                  |             |
| M                                                                         | 376000                                                                                                                                                                                                                     | 1880        | 376000          | 1880        | 376000          | 1880        | 376000          | 1880        |                 |             |                 |             |                  |             |
| H                                                                         | 381500                                                                                                                                                                                                                     | 1907.5      | 381000          | 1905        | 380500          | 1902.5      | 380000          | 1900        |                 |             |                 |             |                  |             |
| NR Band 25                                                                |                                                                                                                                                                                                                            |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
|                                                                           | Bandwidth 5MHz                                                                                                                                                                                                             |             | Bandwidth 10MHz |             | Bandwidth 15MHz |             | Bandwidth 20MHz |             |                 |             |                 |             |                  |             |
|                                                                           | Ch. #                                                                                                                                                                                                                      | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) |                 |             |                 |             |                  |             |
| L                                                                         | 370500                                                                                                                                                                                                                     | 1852.5      | 371000          | 1855        | 371500          | 1857.5      | 372000          | 1860        |                 |             |                 |             |                  |             |
| M                                                                         | 376000                                                                                                                                                                                                                     | 1880        | 376000          | 1880        | 376000          | 1880        | 376000          | 1880        |                 |             |                 |             |                  |             |
| H                                                                         | 382500                                                                                                                                                                                                                     | 1912.5      | 382000          | 1910        | 381500          | 1907.5      | 381000          | 1905        |                 |             |                 |             |                  |             |
| NR Band 41                                                                |                                                                                                                                                                                                                            |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
|                                                                           | Bandwidth 20MHz                                                                                                                                                                                                            |             | Bandwidth 40MHz |             | Bandwidth 50MHz |             | Bandwidth 60MHz |             | Bandwidth 80MHz |             | Bandwidth 90MHz |             | Bandwidth 100MHz |             |
|                                                                           | Ch. #                                                                                                                                                                                                                      | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #            | Freq. (MHz) |
| L                                                                         | 501204                                                                                                                                                                                                                     | 2506.02     | 503202          | 2516.01     | 504204          | 2521.02     | 505200          | 2526        | 507204          | 2536.02     | 508200          | 2541        | 509202           | 2546.01     |
| M                                                                         | 518598                                                                                                                                                                                                                     | 2592.99     | 518598          | 2592.99     | 518598          | 2592.99     | 518598          | 2592.99     | 518598          | 2592.99     | 518598          | 2592.99     | 518598           | 2592.99     |
| H                                                                         | 535998                                                                                                                                                                                                                     | 2679.99     | 534000          | 2670        | 532998          | 2664.99     | 531996          | 2659.98     | 529998          | 2649.99     | 528996          | 2644.98     | 528000           | 2640        |
| NR Band 66                                                                |                                                                                                                                                                                                                            |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
|                                                                           | Bandwidth 5MHz                                                                                                                                                                                                             |             | Bandwidth 10MHz |             | Bandwidth 15MHz |             | Bandwidth 20MHz |             |                 |             |                 |             |                  |             |
|                                                                           | Ch. #                                                                                                                                                                                                                      | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) |                 |             |                 |             |                  |             |
| L                                                                         | 342500                                                                                                                                                                                                                     | 1712.5      | 343000          | 1715        | 343500          | 1717.5      | 344000          | 1720        |                 |             |                 |             |                  |             |
| M                                                                         | 349000                                                                                                                                                                                                                     | 1745        | 349000          | 1745        | 349000          | 1745        | 349000          | 1745        |                 |             |                 |             |                  |             |
| H                                                                         | 355500                                                                                                                                                                                                                     | 1777.5      | 355000          | 1775        | 354500          | 1772.5      | 354000          | 1770        |                 |             |                 |             |                  |             |
| NR Band 71                                                                |                                                                                                                                                                                                                            |             |                 |             |                 |             |                 |             |                 |             |                 |             |                  |             |
|                                                                           | Bandwidth 5MHz                                                                                                                                                                                                             |             | Bandwidth 10MHz |             | Bandwidth 15MHz |             | Bandwidth 20MHz |             |                 |             |                 |             |                  |             |
|                                                                           | Ch. #                                                                                                                                                                                                                      | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) |                 |             |                 |             |                  |             |
| L                                                                         | 133100                                                                                                                                                                                                                     | 665.5       | 133600          | 668         | 13410           | 670.5       | 134600          | 673         |                 |             |                 |             |                  |             |
| M                                                                         | 136100                                                                                                                                                                                                                     | 680.5       | 136100          | 680.5       | 136100          | 680.5       | 136100          | 680.5       |                 |             |                 |             |                  |             |
| H                                                                         | 139100                                                                                                                                                                                                                     | 695.5       | 138600          | 693         | 13810           | 690.5       | 137600          | 688         |                 |             |                 |             |                  |             |

#### **4. Smart Transmit feature for RF Exposure compliance**

The Smart Transmit algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of SAR\_design\_target or PD\_design\_target, below the predefined time-averaged power limit (i.e., input.power.limit for 5G mmW NR), for each characterized technology and band (refer to RF exposure part0 report)

Smart Transmit allows the device to transmit at higher power instantaneously, as high as P<sub>max</sub>, when needed, but enforces power limiting to maintain time-averaged transmit power to P<sub>limit</sub>. Below table shows P<sub>limit</sub> EFS settings and maximum tune up output power P<sub>max</sub> configured for this EUT for various transmit conditions (Device State Index DSI).

##### **<P<sub>limit</sub> for supported technologies and bands (P<sub>limit</sub> in EFS file)>**

| Band                  | Antenna | P <sub>limit</sub> * | P <sub>max</sub> * (dBm) |
|-----------------------|---------|----------------------|--------------------------|
| WCDMA II              | 0       | 23.1                 | 23.0                     |
| WCDMA IV              | 0       | 17.6                 | 23.0                     |
| WCDMA V               | 0       | 23.4                 | 23.0                     |
| LTE Band 7            | 0       | 18.0                 | 23.0                     |
| LTE Band 12/17        | 0       | 23.8                 | 23.0                     |
| LTE Band 13           | 0       | 23.3                 | 23.0                     |
| LTE Band 14           | 0       | 23.5                 | 23.0                     |
| LTE Band 25/2         | 0       | 21.8                 | 23.0                     |
| LTE Band 26/5         | 0       | 23.6                 | 23.0                     |
| LTE Band 30           | 0       | 21.8                 | 20.0                     |
| LTE Band 41/38(PC3)** | 0       | 18.1                 | 21.0                     |
| LTE Band 41 (PC2)**   | 0       | 18.1                 | 21.9                     |
| LTE Band 42           | 4       | 20.0                 | 16.5                     |
| LTE Band 48           | 4       | 20.0                 | 16.5                     |
| LTE Band 66/4         | 0       | 16.7                 | 23.0                     |
| LTE Band 71           | 0       | 23.7                 | 23.0                     |
| LTE Band 2            | 8       | 21.3                 | 23.0                     |
| LTE Bnd 66            | 8       | 22.8                 | 23.0                     |
| FR1 n66               | 0       | 23.2                 | 23.0                     |
| FR1 n71               | 0       | 23.3                 | 23.0                     |
| FR1 n25/2             | 8       | 21.1                 | 23.0                     |
| FR1 n41(PC3)**        | 8       | 19.4                 | 23.0                     |
| FR1 n66               | 8       | 22.4                 | 23.0                     |

\*P<sub>max</sub> is used for RF tune up procedure. The maximum allowed output power is equal to P<sub>max</sub> + 1dB uncertainty.

\*\*All P<sub>limit</sub> power levels entered in the Table correspond to average power levels after accounting for duty cycle in the case TDD modulation schemes (for e.g., GSM & LTE TDD & NR TDD).

The max allowed output power is the P<sub>limit</sub> + 1dB device uncertainty, and if P<sub>limit</sub> is higher than P<sub>max</sub>, the device output power will be P<sub>max</sub> instead.

## **5. RF Exposure Limits**

### **5.1 Uncontrolled Environment**

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

### **5.2 Controlled Environment**

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

**Limits for Occupational/Controlled Exposure (W/kg)**

| Whole-Body | Partial-Body | Hands, Wrists, Feet and Ankles |
|------------|--------------|--------------------------------|
| 0.4        | 8.0          | 20.0                           |

**Limits for General Population/Uncontrolled Exposure (W/kg)**

| Whole-Body | Partial-Body | Hands, Wrists, Feet and Ankles |
|------------|--------------|--------------------------------|
| 0.08       | 1.6          | 4.0                            |

1. Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

## **6. Specific Absorption Rate (SAR)**

### **6.1 Introduction**

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

### **6.2 SAR Definition**

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$SAR = \frac{d}{dt} \left( \frac{dW}{dm} \right) = \frac{d}{dt} \left( \frac{dW}{\rho dv} \right)$$

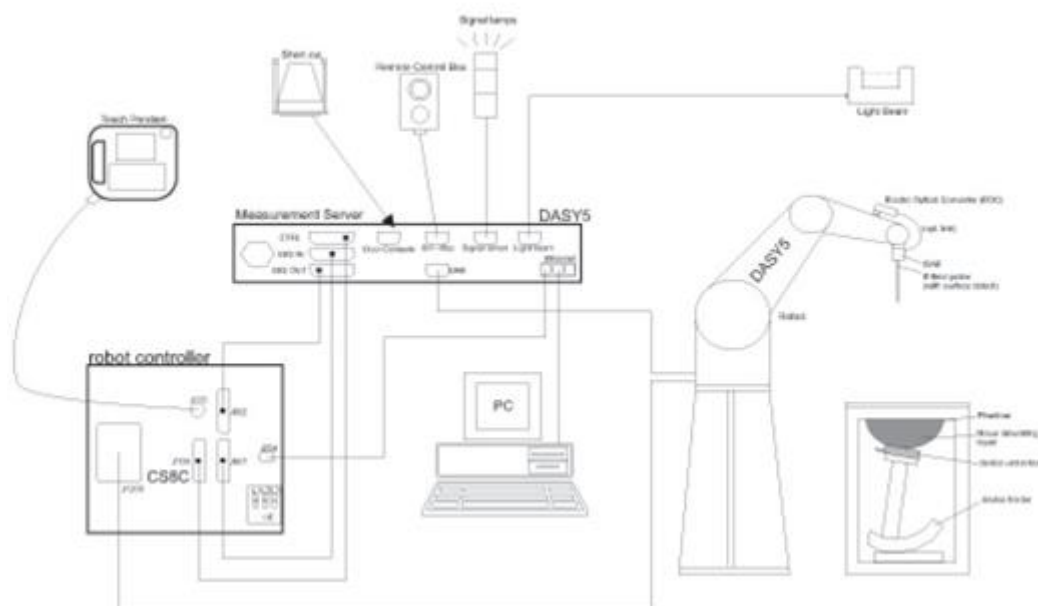
SAR is expressed in units of Watts per kilogram (W/kg)

$$SAR = \frac{\sigma |E|^2}{\rho}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

## 7. System Description and Setup

The DASY system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

### 7.1 Test Site Location

Sporton Lab and below test site location are accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190 and 0007) and the FCC designation No. TW1190 and TW0007 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test.

| Test Site          | SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory                    |          |                                                                                                         |          |
|--------------------|----------------------------------------------------------------------------------------|----------|---------------------------------------------------------------------------------------------------------|----------|
| Test Site Location | TW1190<br>No. 52, Huaya 1st Rd., Guishan Dist.,<br>Taoyuan City 333,<br>CHINESE TAIPEI |          | TW0007<br>No. 58, Aly. 75, Ln. 564, Wehnuia 3rd, Rd.,<br>Guishan Dist., Taoyuan City,<br>CHINESE TAIPEI |          |
|                    |                                                                                        |          |                                                                                                         |          |
| Test Site No.      | SAR01-HY                                                                               | SAR03-HY | SAR08-HY                                                                                                | SAR09-HY |
|                    | SAR04-HY                                                                               | SAR05-HY | SAR11-HY                                                                                                | SAR12-HY |
|                    | SAR06-HY                                                                               | SAR10-HY |                                                                                                         |          |

## 7.2 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG). The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

### <ES3DV3 Probe>

|                      |                                                                                                                                                                                  |                                                                                    |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>Construction</b>  | Symmetric design with triangular core<br>Interleaved sensors<br>Built-in shielding against static charges<br>PEEK enclosure material (resistant to organic solvents, e.g., DGBE) |  |
| <b>Frequency</b>     | 10 MHz – 4 GHz;<br>Linearity: $\pm 0.2$ dB (30 MHz – 4 GHz)                                                                                                                      |                                                                                    |
| <b>Directivity</b>   | $\pm 0.2$ dB in TSL (rotation around probe axis)<br>$\pm 0.3$ dB in TSL (rotation normal to probe axis)                                                                          |                                                                                    |
| <b>Dynamic Range</b> | 5 $\mu$ W/g – >100 mW/g;<br>Linearity: $\pm 0.2$ dB                                                                                                                              |                                                                                    |
| <b>Dimensions</b>    | Overall length: 337 mm (tip: 20 mm)<br>Tip diameter: 3.9 mm (body: 12 mm)<br>Distance from probe tip to dipole centers: 3.0 mm                                                   |                                                                                    |

### <EX3DV4 Probe>

|                      |                                                                                                                                                           |                                                                                     |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Construction</b>  | Symmetric design with triangular core<br>Built-in shielding against static charges<br>PEEK enclosure material (resistant to organic solvents, e.g., DGBE) |  |
| <b>Frequency</b>     | 10 MHz – >6 GHz<br>Linearity: $\pm 0.2$ dB (30 MHz – 6 GHz)                                                                                               |                                                                                     |
| <b>Directivity</b>   | $\pm 0.3$ dB in TSL (rotation around probe axis)<br>$\pm 0.5$ dB in TSL (rotation normal to probe axis)                                                   |                                                                                     |
| <b>Dynamic Range</b> | 10 $\mu$ W/g – >100 mW/g<br>Linearity: $\pm 0.2$ dB (noise: typically <1 $\mu$ W/g)                                                                       |                                                                                     |
| <b>Dimensions</b>    | Overall length: 337 mm (tip: 20 mm)<br>Tip diameter: 2.5 mm (body: 12 mm)<br>Typical distance from probe tip to dipole centers: 1 mm                      |                                                                                     |

## 7.3 Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.



**Fig 5.1 Photo of DAE**

## 7.4 Phantom

### <SAM Twin Phantom>

|                          |                                                         |                                                                                    |
|--------------------------|---------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>Shell Thickness</b>   | 2 ± 0.2 mm;<br>Center ear point: 6 ± 0.2 mm             |  |
| <b>Filling Volume</b>    | Approx. 25 liters                                       |                                                                                    |
| <b>Dimensions</b>        | Length: 1000 mm; Width: 500 mm; Height: adjustable feet |                                                                                    |
| <b>Measurement Areas</b> | Left Hand, Right Hand, Flat Phantom                     |                                                                                    |

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

### <ELI Phantom>

|                        |                                                  |                                                                                     |
|------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Shell Thickness</b> | 2 ± 0.2 mm (sagging: <1%)                        |  |
| <b>Filling Volume</b>  | Approx. 30 liters                                |                                                                                     |
| <b>Dimensions</b>      | Major ellipse axis: 600 mm<br>Minor axis: 400 mm |                                                                                     |

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

## **7.5 Device Holder**

### **<Mounting Device for Hand-Held Transmitter>**

In combination with the Twin SAM V5.0/V5.0c or ELI phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). And upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140 mm.



Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

### **<Mounting Device for Laptops and other Body-Worn Transmitters>**

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.



Mounting Device for Laptops

## **8. Measurement Procedures**

The measurement procedures are as follows:

### <Conducted power measurement>

- (a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
- (b) Read the WWAN RF power level from the base station simulator.
- (c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
- (d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

### <SAR measurement>

- (a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
- (b) Place the EUT in the positions as Appendix D demonstrates.
- (c) Set scan area, grid size and other setting on the DASY software.
- (d) Measure SAR results for the highest power channel on each testing position.
- (e) Find out the largest SAR result on these testing positions of each band
- (f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- (a) Power reference measurement
- (b) Area scan
- (c) Zoom scan
- (d) Power drift measurement

### **8.1 Spatial Peak SAR Evaluation**

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

- (a) Extraction of the measured data (grid and values) from the Zoom Scan
- (b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- (c) Generation of a high-resolution mesh within the measured volume
- (d) Interpolation of all measured values from the measurement grid to the high-resolution grid
- (e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- (f) Calculation of the averaged SAR within masses of 1g and 10g

## **8.2 Power Reference Measurement**

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

## **8.3 Area Scan**

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

|                                                                                                        | $\leq 3$ GHz                                                                                                                                                                                                                                                           | $> 3$ GHz                                              |
|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface | $5 \pm 1$ mm                                                                                                                                                                                                                                                           | $\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm     |
| Maximum probe angle from probe axis to phantom surface normal at the measurement location              | $30^\circ \pm 1^\circ$                                                                                                                                                                                                                                                 | $20^\circ \pm 1^\circ$                                 |
| Maximum area scan spatial resolution: $\Delta x_{Area}$ , $\Delta y_{Area}$                            | $\leq 2$ GHz: $\leq 15$ mm<br>$2 - 3$ GHz: $\leq 12$ mm                                                                                                                                                                                                                | $3 - 4$ GHz: $\leq 12$ mm<br>$4 - 6$ GHz: $\leq 10$ mm |
|                                                                                                        | When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device. |                                                        |

### 8.4 Zoom Scan

Zoom scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

|                                                                                                                                                                                                                                                                                                             |                                           |                                                                                             | $\leq 3$ GHz                                           | $> 3$ GHz                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------|
| Maximum zoom scan spatial resolution: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$                                                                                                                                                                                                                      |                                           |                                                                                             | $\leq 2$ GHz: $\leq 8$ mm<br>$2 - 3$ GHz: $\leq 5$ mm* | $3 - 4$ GHz: $\leq 5$ mm*<br>$4 - 6$ GHz: $\leq 4$ mm*                              |
| Maximum zoom scan spatial resolution, normal to phantom surface                                                                                                                                                                                                                                             | uniform grid: $\Delta z_{\text{Zoom}}(n)$ |                                                                                             | $\leq 5$ mm                                            | $3 - 4$ GHz: $\leq 4$ mm<br>$4 - 5$ GHz: $\leq 3$ mm<br>$5 - 6$ GHz: $\leq 2$ mm    |
|                                                                                                                                                                                                                                                                                                             | graded grid                               | $\Delta z_{\text{Zoom}}(1)$ : between 1 <sup>st</sup> two points closest to phantom surface | $\leq 4$ mm                                            | $3 - 4$ GHz: $\leq 3$ mm<br>$4 - 5$ GHz: $\leq 2.5$ mm<br>$5 - 6$ GHz: $\leq 2$ mm  |
|                                                                                                                                                                                                                                                                                                             |                                           | $\Delta z_{\text{Zoom}}(n>1)$ : between subsequent points                                   | $\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$           |                                                                                     |
| Minimum zoom scan volume                                                                                                                                                                                                                                                                                    | x, y, z                                   |                                                                                             | $\geq 30$ mm                                           | $3 - 4$ GHz: $\geq 28$ mm<br>$4 - 5$ GHz: $\geq 25$ mm<br>$5 - 6$ GHz: $\geq 22$ mm |
| Note: $\delta$ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.                                                                                                                                                           |                                           |                                                                                             |                                                        |                                                                                     |
| * When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is $\leq 1.4$ W/kg, $\leq 8$ mm, $\leq 7$ mm and $\leq 5$ mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz. |                                           |                                                                                             |                                                        |                                                                                     |

### 8.5 Volume Scan Procedures

The volume scan is used to assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

### 8.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASy measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.

## 9. Test Equipment List

| Manufacturer  | Name of Equipment                            | Type/Model      | Serial Number | Calibration   |               |
|---------------|----------------------------------------------|-----------------|---------------|---------------|---------------|
|               |                                              |                 |               | Last Cal.     | Due Date      |
| SPEAG         | 750MHz System Validation Kit <sup>(2)</sup>  | D750V3          | 1107          | Mar. 08, 2019 | Mar. 06, 2021 |
| SPEAG         | 835MHz System Validation Kit                 | D835V2          | 4d167         | Nov. 25, 2019 | Nov. 24, 2020 |
| SPEAG         | 1750MHz System Validation Kit <sup>(2)</sup> | D1750V2         | 1112          | Mar. 07, 2019 | Mar. 05, 2021 |
| SPEAG         | 1900MHz System Validation Kit <sup>(2)</sup> | D1900V2         | 5d185         | Mar. 07, 2019 | Mar. 05, 2021 |
| SPEAG         | 2300MHz System Validation Kit <sup>(2)</sup> | D2300V2         | 1006          | Jan. 28, 2019 | Jan. 26, 2021 |
| SPEAG         | 2600MHz System Validation Kit <sup>(2)</sup> | D2600V2         | 1078          | Mar. 06, 2019 | Mar. 04, 2021 |
| SPEAG         | 3500MHz System Validation Kit <sup>(2)</sup> | D3500V2         | 1014          | Jan. 29, 2019 | Jan. 27, 2021 |
| SPEAG         | 3700MHz System Validation Kit <sup>(2)</sup> | D3700V2         | 1006          | Mar. 05, 2019 | Mar. 03, 2021 |
| SPEAG         | Data Acquisition Electronics                 | DAE4            | 376           | Dec. 06, 2019 | Dec. 05, 2020 |
| SPEAG         | Data Acquisition Electronics                 | DAE4            | 699           | Feb. 26, 2020 | Feb. 25, 2021 |
| SPEAG         | Data Acquisition Electronics                 | DAE4            | 916           | Dec. 17, 2019 | Dec. 16, 2020 |
| SPEAG         | Data Acquisition Electronics                 | DAE4            | 1399          | Feb. 18, 2020 | Feb. 17, 2021 |
| SPEAG         | Dosimetric E-Field Probe                     | ES3DV3          | 3184          | Sep. 25, 2019 | Sep. 24, 2020 |
| SPEAG         | Dosimetric E-Field Probe                     | ES3DV3          | 3270          | Sep. 25, 2019 | Sep. 24, 2020 |
| SPEAG         | Dosimetric E-Field Probe                     | EX3DV4          | 3642          | Apr. 29, 2020 | Apr. 28, 2021 |
| SPEAG         | Dosimetric E-Field Probe                     | EX3DV4          | 3728          | Feb. 04, 2020 | Feb. 03, 2021 |
| SPEAG         | Dosimetric E-Field Probe                     | EX3DV4          | 3071          | Dec. 18, 2019 | Dec. 17, 2020 |
| RCPTWN        | Thermometer                                  | HTC-1           | TM685-1       | Nov. 12, 2019 | Nov. 11, 2020 |
| RCPTWN        | Thermometer                                  | HTC-1           | TM560-2       | Nov. 12, 2019 | Nov. 11, 2020 |
| Anritsu       | Radio Communication Analyzer                 | MT8821C         | 6201341950    | Oct. 31, 2019 | Oct. 30, 2020 |
| Agilent       | Wireless Communication Test Set              | E5515C          | MY50266977    | May. 24, 2020 | May. 23, 2021 |
| SPEAG         | Device Holder                                | N/A             | N/A           | N/A           | N/A           |
| Anritsu       | Signal Generator                             | MG3710A         | 6201502524    | Nov. 20, 2019 | Nov. 19, 2020 |
| Agilent       | ENA Network Analyzer                         | E5071C          | MY46101588    | Jun. 10, 2020 | Jun. 09, 2021 |
| SPEAG         | Dielectric Probe Kit                         | DAK-3.5         | 1126          | Sep. 18, 2019 | Sep. 17, 2020 |
| LINE SEIKI    | Digital Thermometer                          | DTM3000-spezial | 2942          | Nov. 18, 2019 | Nov. 17, 2020 |
| Anritsu       | Power Meter                                  | ML2495A         | 1419002       | Aug. 19, 2020 | Aug. 18, 2021 |
| Anritsu       | Power Sensor                                 | MA2411B         | 1911176       | Aug. 18, 2020 | Aug. 17, 2021 |
| Anritsu       | Power Meter                                  | ML2495A         | 0932001       | Oct. 03, 2019 | Oct. 02, 2020 |
| Anritsu       | Power Sensor                                 | MA2411B         | 0846202       | Oct. 03, 2019 | Oct. 02, 2020 |
| Anritsu       | Spectrum Analyzer                            | MS2830A         | 6201396378    | Jun. 30, 2020 | Jun. 29, 2021 |
| Anritsu       | Spectrum Analyzer                            | N9010A          | MY53470118    | Mar. 12, 2020 | Mar. 11, 2021 |
| Mini-Circuits | Power Amplifier                              | ZVE-8G+         | 6418          | Oct. 16, 2019 | Oct. 15, 2020 |
| Mini-Circuits | Power Amplifier                              | ZHL-42W+        | 715701915     | May. 07, 2020 | May. 06, 2021 |
| ATM           | Dual Directional Coupler                     | C122H-10        | P610410z-02   | Note 1        |               |
| Woken         | Attenuator 1                                 | WK0602-XX       | N/A           | Note 1        |               |
| PE            | Attenuator 2                                 | PE7005-10       | N/A           | Note 1        |               |
| PE            | Attenuator 3                                 | PE7005- 3       | N/A           | Note 1        |               |

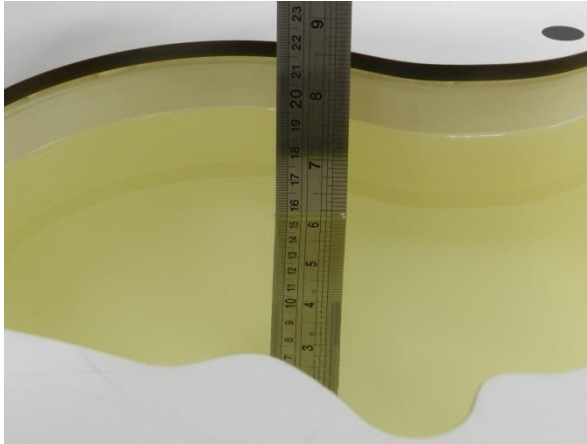
**General Note:**

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.
2. The dipole calibration interval can be extended to 3 years with justification according to KDB 865664 D01. The dipoles are also not physically damaged, or repaired during the interval. The justification data in appendix C can be found which the return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration for each dipole.

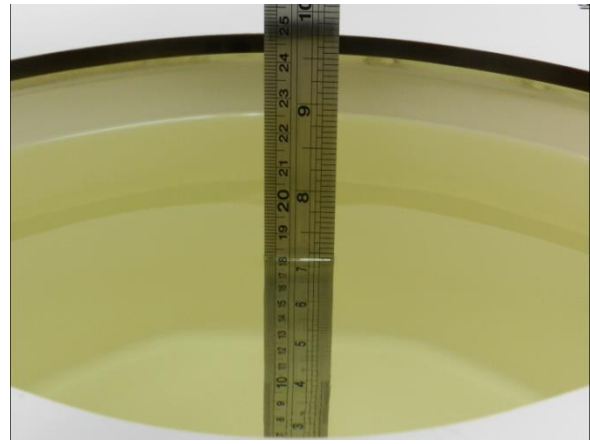
## **10. System Verification**

### **10.1 Tissue Simulating Liquids**

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.2.



**Fig 10.1**Photo of Liquid Height for Head SAR



**Fig 10.2** Photo of Liquid Height for Body SAR

## 10.2 Tissue Verification

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

| Frequency (MHz)  | Water (%) | Sugar (%) | Cellulose (%) | Salt (%) | Preventol (%) | DGBE (%) | Conductivity ( $\sigma$ ) | Permittivity ( $\epsilon_r$ ) |
|------------------|-----------|-----------|---------------|----------|---------------|----------|---------------------------|-------------------------------|
| 750              | 41.1      | 57.0      | 0.2           | 1.4      | 0.2           | 0        | 0.89                      | 41.9                          |
| 835              | 40.3      | 57.9      | 0.2           | 1.4      | 0.2           | 0        | 0.90                      | 41.5                          |
| 900              | 40.3      | 57.9      | 0.2           | 1.4      | 0.2           | 0        | 0.97                      | 41.5                          |
| 1800, 1900, 2000 | 55.2      | 0         | 0             | 0.3      | 0             | 44.5     | 1.40                      | 40.0                          |
| 2450             | 55.0      | 0         | 0             | 0        | 0             | 45.0     | 1.80                      | 39.2                          |
| 2600             | 54.8      | 0         | 0             | 0.1      | 0             | 45.1     | 1.96                      | 39.0                          |

### Simulating Liquid for 5GHz, Manufactured by SPEAG

| Ingredients        | (% by weight) |
|--------------------|---------------|
| Water              | 64~78%        |
| Mineral oil        | 11~18%        |
| Emulsifiers        | 9~15%         |
| Additives and Salt | 2~3%          |

### <Tissue Dielectric Parameter Check Results>

| Frequency (MHz) | Liquid Temp. (°C) | Conductivity ( $\sigma$ ) | Permittivity ( $\epsilon_r$ ) | Conductivity Target ( $\sigma$ ) | Permittivity Target ( $\epsilon_r$ ) | Delta ( $\sigma$ ) (%) | Delta ( $\epsilon_r$ ) (%) | Limit (%) | Date      |
|-----------------|-------------------|---------------------------|-------------------------------|----------------------------------|--------------------------------------|------------------------|----------------------------|-----------|-----------|
| 750             | 22.6              | 0.889                     | 41.321                        | 0.89                             | 41.90                                | -0.11                  | -1.38                      | ±5        | 2020/8/5  |
| 750             | 22.5              | 0.907                     | 43.283                        | 0.89                             | 41.90                                | 1.91                   | 3.30                       | ±5        | 2020/8/12 |
| 835             | 22.3              | 0.883                     | 41.086                        | 0.90                             | 41.50                                | -1.89                  | -1.00                      | ±5        | 2020/8/4  |
| 835             | 22.2              | 0.886                     | 40.910                        | 0.90                             | 41.50                                | -1.56                  | -1.42                      | ±5        | 2020/8/6  |
| 1750            | 22.6              | 1.378                     | 39.412                        | 1.37                             | 40.10                                | 0.58                   | -1.72                      | ±5        | 2020/9/4  |
| 1750            | 22.6              | 1.358                     | 39.398                        | 1.37                             | 40.10                                | -0.88                  | -1.75                      | ±5        | 2020/9/4  |
| 1750            | 22.2              | 1.363                     | 40.388                        | 1.37                             | 40.10                                | -0.51                  | 0.72                       | ±5        | 2020/9/12 |
| 1750            | 22.3              | 1.380                     | 41.522                        | 1.37                             | 40.10                                | 0.73                   | 3.55                       | ±5        | 2020/9/14 |
| 1900            | 22.6              | 1.424                     | 39.616                        | 1.40                             | 40.00                                | 1.71                   | -0.96                      | ±5        | 2020/9/4  |
| 1900            | 22.5              | 1.421                     | 39.566                        | 1.40                             | 40.00                                | 1.50                   | -1.08                      | ±5        | 2020/9/5  |
| 1900            | 22.2              | 1.399                     | 40.611                        | 1.40                             | 40.00                                | -0.07                  | 1.53                       | ±5        | 2020/9/12 |
| 2300            | 22.2              | 1.657                     | 39.735                        | 1.67                             | 39.50                                | -0.78                  | 0.59                       | ±5        | 2020/9/12 |
| 2600            | 22.5              | 2.045                     | 38.385                        | 1.96                             | 39.00                                | 4.34                   | -1.58                      | ±5        | 2020/9/5  |
| 2600            | 22.2              | 1.989                     | 38.729                        | 1.96                             | 39.00                                | 1.48                   | -0.69                      | ±5        | 2020/9/12 |
| 3500            | 22.3              | 3.010                     | 38.815                        | 2.91                             | 37.90                                | 3.44                   | 2.41                       | ±5        | 2020/9/6  |
| 3700            | 22.3              | 3.163                     | 38.545                        | 3.12                             | 37.70                                | 1.38                   | 2.24                       | ±5        | 2020/9/6  |

### 10.3 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

| Date      | Frequency (MHz) | Input Power (mW) | Dipole S/N    | Probe S/N       | DAE S/N     | Measured 1g SAR (W/kg) | Targeted 1g SAR (W/kg) | Normalized 1g SAR (W/kg) | Deviation (%) |
|-----------|-----------------|------------------|---------------|-----------------|-------------|------------------------|------------------------|--------------------------|---------------|
| 2020/8/5  | 750             | 250              | D750V3-1107   | EX3DV4 - SN3728 | DAE4 Sn699  | 2.12                   | 8.32                   | 8.48                     | 1.92          |
| 2020/8/12 | 750             | 250              | D750V3-1107   | EX3DV4 - SN3642 | DAE4 Sn376  | 2.04                   | 8.32                   | 8.16                     | -1.92         |
| 2020/8/4  | 835             | 250              | D835V2-4d167  | EX3DV4 - SN3728 | DAE4 Sn699  | 2.32                   | 9.55                   | 9.28                     | -2.83         |
| 2020/8/6  | 835             | 250              | D835V2-4d167  | EX3DV4 - SN3728 | DAE4 Sn699  | 2.33                   | 9.55                   | 9.32                     | -2.41         |
| 2020/9/4  | 1750            | 250              | D1750V2-1112  | ES3DV3 - SN3184 | DAE4 Sn916  | 8.86                   | 36.70                  | 35.44                    | -3.43         |
| 2020/9/4  | 1750            | 250              | D1750V2-1112  | ES3DV3 - SN3270 | DAE4 Sn1399 | 9.31                   | 36.70                  | 37.24                    | 1.47          |
| 2020/9/12 | 1750            | 250              | D1750V2-1112  | EX3DV4 - SN3642 | DAE4 Sn376  | 9.20                   | 36.70                  | 36.8                     | 0.27          |
| 2020/9/14 | 1750            | 250              | D1750V2-1112  | ES3DV3 - SN3071 | DAE4 Sn916  | 8.45                   | 36.70                  | 33.8                     | -7.90         |
| 2020/9/4  | 1900            | 250              | D1900V2-5d185 | ES3DV3 - SN3184 | DAE4 Sn916  | 9.66                   | 39.40                  | 38.64                    | -1.93         |
| 2020/9/5  | 1900            | 250              | D1900V2-5d185 | ES3DV3 - SN3184 | DAE4 Sn916  | 9.64                   | 39.40                  | 38.56                    | -2.13         |
| 2020/9/12 | 1900            | 250              | D1900V2-5d185 | EX3DV4 - SN3642 | DAE4 Sn376  | 10.10                  | 39.40                  | 40.4                     | 2.54          |
| 2020/9/12 | 2300            | 250              | D2300V2-1006  | EX3DV4 - SN3642 | DAE4 Sn376  | 11.90                  | 48.70                  | 47.6                     | -2.26         |
| 2020/9/5  | 2600            | 250              | D2600V2-1078  | ES3DV3 - SN3184 | DAE4 Sn916  | 14.20                  | 57.60                  | 56.8                     | -1.39         |
| 2020/9/12 | 2600            | 250              | D2600V2-1078  | EX3DV4 - SN3642 | DAE4 Sn376  | 13.40                  | 57.60                  | 53.6                     | -6.94         |
| 2020/9/6  | 3500            | 100              | D3500V2-1014  | EX3DV4 - SN3642 | DAE4 Sn376  | 6.61                   | 67.90                  | 66.1                     | -2.65         |
| 2020/9/6  | 3700            | 100              | D3700V2-1006  | EX3DV4 - SN3642 | DAE4 Sn376  | 6.44                   | 67.30                  | 64.4                     | -4.31         |

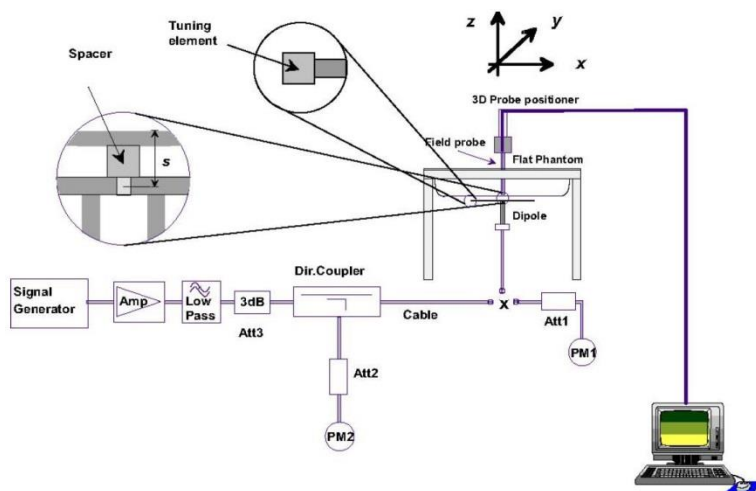


Fig 8.3.1 System Performance Check Setup



Fig 8.3.2 Setup Photo



## **11. RF Exposure Positions**

### **11.1 Wireless Router**

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets (L x W  $\geq$  9 cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 publication procedures. The "Portable Hotspot" feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

## **12. UMTS/LTE Output Power (Unit: dBm)**

### **<WCDMA Conducted Power>**

1. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
2. The procedures in KDB 941225 D01v03r01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.
3. For DC-HSDPA, the device was configured according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1, with the primary and the secondary serving HS-DSCH Cell enabled during the power measurement.

A summary of these settings are illustrated below:

### **HSDPA Setup Configuration:**

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
  - i. Set Gain Factors ( $\beta_c$  and  $\beta_d$ ) and parameters were set according to each
  - ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
  - iii. Set RMC 12.2Kbps + HSDPA mode.
  - iv. Set Cell Power = -86 dBm
  - v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
  - vi. Select HSDPA Uplink Parameters
  - vii. Set Delta ACK, Delta NACK and Delta CQI = 8
  - viii. Set Ack-Nack Repetition Factor to 3
  - ix. Set CQI Feedback Cycle (k) to 4 ms
  - x. Set CQI Repetition Factor to 2
  - xi. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.

**Table C.10.1.4:  $\beta$  values for transmitter characteristics tests with HS-DPCCH**

| Sub-test | $\beta_c$         | $\beta_d$         | $\beta_d$<br>(SF) | $\beta_c/\beta_d$ | $\beta_{hs}$<br>(Note 1,<br>Note 2) | CM (dB)<br>(Note 3) | MPR (dB)<br>(Note 3) |
|----------|-------------------|-------------------|-------------------|-------------------|-------------------------------------|---------------------|----------------------|
| 1        | 2/15              | 15/15             | 64                | 2/15              | 4/15                                | 0.0                 | 0.0                  |
| 2        | 12/15<br>(Note 4) | 15/15<br>(Note 4) | 64                | 12/15<br>(Note 4) | 24/15                               | 1.0                 | 0.0                  |
| 3        | 15/15             | 8/15              | 64                | 15/8              | 30/15                               | 1.5                 | 0.5                  |
| 4        | 15/15             | 4/15              | 64                | 15/4              | 30/15                               | 1.5                 | 0.5                  |

**Note 1:**  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ .

**Note 2:** For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA,  $\Delta_{ACK}$  and  $\Delta_{NACK} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ , and  $\Delta_{CQI} = 24/15$  with  $\beta_{hs} = 24/15 * \beta_c$ .

**Note 3:** CM = 1 for  $\beta_c/\beta_d = 12/15$ ,  $\beta_{hs}/\beta_c = 24/15$ . For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

**Note 4:** For subtest 2 the  $\beta_c/\beta_d$  ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 11/15$  and  $\beta_d = 15/15$ .

### **Setup Configuration**

**HSUPA Setup Configuration:**

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting \* :
  - i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
  - ii. Set the Gain Factors ( $\beta_c$  and  $\beta_d$ ) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
  - iii. Set Cell Power = -86 dBm
  - iv. Set Channel Type = 12.2k + HSPA
  - v. Set UE Target Power
  - vi. Power Ctrl Mode= Alternating bits
  - vii. Set and observe the E-TFCI
  - viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
- d. The transmitted maximum output power was recorded.

**Table C.11.1.3:  $\beta$  values for transmitter characteristics tests with HS-DPCCH and E-DCH**

| Sub-test | $\beta_c$      | $\beta_d$      | $\beta_d$ (SF) | $\beta_c/\beta_d$ | $\beta_{HS}$ (Note 1) | $\beta_{ec}$ | $\beta_{ed}$ (Note 4) (Note 5)                 | $\beta_{ed}$ (SF) | $\beta_{ed}$ (Codes) | CM (dB) (Note 2) | MPR (dB) (Note 2) (Note 6) | AG Index (Note 5) | E-TFCI |
|----------|----------------|----------------|----------------|-------------------|-----------------------|--------------|------------------------------------------------|-------------------|----------------------|------------------|----------------------------|-------------------|--------|
| 1        | 11/15 (Note 3) | 15/15 (Note 3) | 64             | 11/15 (Note 3)    | 22/15                 | 209/25       | 1309/225                                       | 4                 | 1                    | 1.0              | 0.0                        | 20                | 75     |
| 2        | 6/15           | 15/15          | 64             | 6/15              | 12/15                 | 12/15        | 94/75                                          | 4                 | 1                    | 3.0              | 2.0                        | 12                | 67     |
| 3        | 15/15          | 9/15           | 64             | 15/9              | 30/15                 | 30/15        | $\beta_{ed1}$ : 47/15<br>$\beta_{ed2}$ : 47/15 | 4                 | 2                    | 2.0              | 1.0                        | 15                | 92     |
| 4        | 2/15           | 15/15          | 64             | 2/15              | 4/15                  | 2/15         | 56/75                                          | 4                 | 1                    | 3.0              | 2.0                        | 17                | 71     |
| 5        | 15/15          | 0              | -              | -                 | 5/15                  | 5/15         | 47/15                                          | 4                 | 1                    | 1.0              | 0.0                        | 12                | 67     |

Note 1: For sub-test 1 to 4,  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ . For sub-test 5,  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 5/15$  with  $\beta_{hs} = 5/15 * \beta_c$ .

Note 2: CM = 1 for  $\beta_d/\beta_c = 12/15$ ,  $\beta_{hs}/\beta_c = 24/15$ . For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the  $\beta_d/\beta_c$  ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 10/15$  and  $\beta_d = 15/15$ .

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

**Setup Configuration**

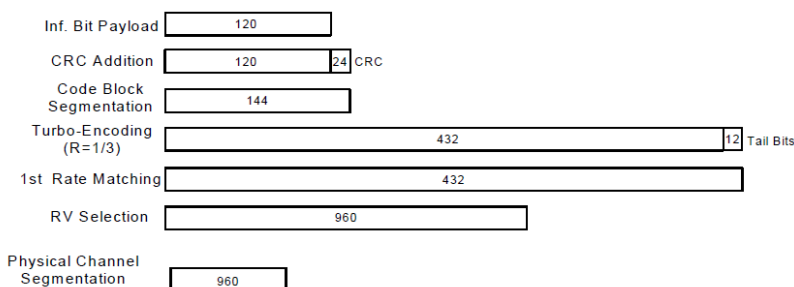
**DC-HSDPA 3GPP release 8 Setup Configuration:**

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration below
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
  - i. Set RMC 12.2Kbps + HSDPA mode.
  - ii. Set Cell Power = -25 dBm
  - iii. Set HS-DSCH Configuration Type to FRC (H-set 12, QPSK)
  - iv. Select HSDPA Uplink Parameters
  - v. Set Gain Factors ( $\beta_c$  and  $\beta_d$ ) and parameters were set according to each Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
    - a). Subtest 1:  $\beta_c/\beta_d=2/15$
    - b). Subtest 2:  $\beta_c/\beta_d=12/15$
    - c). Subtest 3:  $\beta_c/\beta_d=15/8$
    - d). Subtest 4:  $\beta_c/\beta_d=15/4$
  - vi. Set Delta ACK, Delta NACK and Delta CQI = 8
  - vii. Set Ack-Nack Repetition Factor to 3
  - viii. Set CQI Feedback Cycle (k) to 4 ms
  - ix. Set CQI Repetition Factor to 2
  - x. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification. A summary of these settings are illustrated below:

**C.8.1.12 Fixed Reference Channel Definition H-Set 12**
**Table C.8.1.12: Fixed Reference Channel H-Set 12**

| Parameter                                                                                                                                              | Unit      | Value |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------|
| Nominal Avg. Inf. Bit Rate                                                                                                                             | kbps      | 60    |
| Inter-TTI Distance                                                                                                                                     | TTI's     | 1     |
| Number of HARQ Processes                                                                                                                               | Processes | 6     |
| Information Bit Payload ( $N_{INF}$ )                                                                                                                  | Bits      | 120   |
| Number Code Blocks                                                                                                                                     | Blocks    | 1     |
| Binary Channel Bits Per TTI                                                                                                                            | Bits      | 960   |
| Total Available SML's in UE                                                                                                                            | SML's     | 19200 |
| Number of SML's per HARQ Proc.                                                                                                                         | SML's     | 3200  |
| Coding Rate                                                                                                                                            |           | 0.15  |
| Number of Physical Channel Codes                                                                                                                       | Codes     | 1     |
| Modulation                                                                                                                                             |           | QPSK  |
| Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.               |           |       |
| Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used. |           |       |


**Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)**
**Setup Configuration**

**<WCDMA Conducted Power>**
**General Note:**

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is  $\leq \frac{1}{4}$  dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is  $\leq 1.2$  W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than  $\frac{1}{4}$  dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

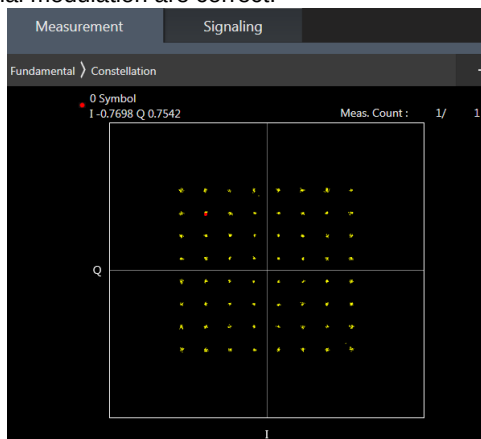
**Ant 0**

| Band            |                    | WCDMA II |       |        | Tune-up Limit (dBm) | WCDMA IV |        |        | Tune-up Limit (dBm) | WCDMA V |       |       | Tune-up Limit (dBm) |
|-----------------|--------------------|----------|-------|--------|---------------------|----------|--------|--------|---------------------|---------|-------|-------|---------------------|
| TX Channel      |                    | 9262     | 9400  | 9538   |                     | 1312     | 1413   | 1513   |                     | 4132    | 4182  | 4233  |                     |
| Rx Channel      |                    | 9662     | 9800  | 9938   |                     | 1537     | 1638   | 1738   |                     | 4357    | 4407  | 4458  |                     |
| Frequency (MHz) |                    | 1852.4   | 1880  | 1907.6 |                     | 1712.4   | 1732.6 | 1752.6 |                     | 826.4   | 836.4 | 846.6 |                     |
| 3GPP Rel 99     | RMC 12.2Kbps       | 23.74    | 23.88 | 23.84  | 24.00               | 18.05    | 17.84  | 17.77  | 18.60               | 23.77   | 23.78 | 23.70 | 24.00               |
| 3GPP Rel 6      | HSDPA Subtest-1    | 22.72    | 22.91 | 22.80  | 23.00               | 16.97    | 16.89  | 16.78  | 17.60               | 22.80   | 22.76 | 22.68 | 23.00               |
| 3GPP Rel 6      | HSDPA Subtest-2    | 22.78    | 22.89 | 22.80  | 23.00               | 16.97    | 16.90  | 16.84  | 17.60               | 22.76   | 22.77 | 22.70 | 23.00               |
| 3GPP Rel 6      | HSDPA Subtest-3    | 22.23    | 22.37 | 22.35  | 22.50               | 16.40    | 16.43  | 16.30  | 17.10               | 22.29   | 22.27 | 22.20 | 22.50               |
| 3GPP Rel 6      | HSDPA Subtest-4    | 22.24    | 22.41 | 22.31  | 22.50               | 16.40    | 16.37  | 16.28  | 17.10               | 22.30   | 22.28 | 22.24 | 22.50               |
| 3GPP Rel 8      | DC-HSDPA Subtest-1 | 22.64    | 22.91 | 22.72  | 23.00               | 16.90    | 16.89  | 16.84  | 17.60               | 22.79   | 22.66 | 22.67 | 23.00               |
| 3GPP Rel 8      | DC-HSDPA Subtest-2 | 22.68    | 22.84 | 22.71  | 23.00               | 16.97    | 16.85  | 16.78  | 17.60               | 22.68   | 22.68 | 22.60 | 23.00               |
| 3GPP Rel 8      | DC-HSDPA Subtest-3 | 22.13    | 22.37 | 22.31  | 22.50               | 16.45    | 16.44  | 16.29  | 17.10               | 22.20   | 22.19 | 22.16 | 22.50               |
| 3GPP Rel 8      | DC-HSDPA Subtest-4 | 22.16    | 22.41 | 22.21  | 22.50               | 16.44    | 16.37  | 16.34  | 17.10               | 22.27   | 22.19 | 22.17 | 22.50               |
| 3GPP Rel 6      | HSUPA Subtest-1    | 22.79    | 22.95 | 22.88  | 23.00               | 16.95    | 16.84  | 16.78  | 17.60               | 22.83   | 22.80 | 22.79 | 23.00               |
| 3GPP Rel 6      | HSUPA Subtest-2    | 20.78    | 20.93 | 20.86  | 21.00               | 14.96    | 14.89  | 14.87  | 15.60               | 20.81   | 20.82 | 20.77 | 21.00               |
| 3GPP Rel 6      | HSUPA Subtest-3    | 21.78    | 21.94 | 21.87  | 22.00               | 15.95    | 15.85  | 15.79  | 16.60               | 21.84   | 21.81 | 21.80 | 22.00               |
| 3GPP Rel 6      | HSUPA Subtest-4    | 20.77    | 20.90 | 20.87  | 21.00               | 14.90    | 14.88  | 14.84  | 15.60               | 20.84   | 20.77 | 20.80 | 21.00               |
| 3GPP Rel 6      | HSUPA Subtest-5    | 22.80    | 22.90 | 22.90  | 23.00               | 16.91    | 16.88  | 16.82  | 17.60               | 22.80   | 22.80 | 22.79 | 23.00               |

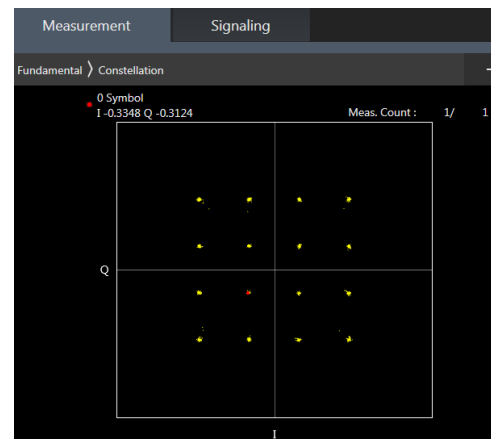
### <LTE Conducted Power>

#### General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are  $\leq 0.8 \text{ W/kg}$ . Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is  $> 1.45 \text{ W/kg}$ , the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is  $>$  not  $\frac{1}{2}$  dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is  $\leq 1.45 \text{ W/kg}$ ; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is  $>$  not  $\frac{1}{2}$  dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is  $\leq 1.45 \text{ W/kg}$ ; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4/B5/B12/B17/B26/B38/B71 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE band 2/4/5/17/38 SAR test was covered by Band 25/66/26/12/41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
  - a. the maximum output power, including tolerance, for the smaller band is  $\leq$  the larger band to qualify for the SAR test exclusion
  - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



**64QAM**



**16QAM**

**Ant 0**
**<LTE Band 2>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 18700                    | 18900                       | 19100                     |                        |             |
| Frequency (MHz) |            |         |           | 1860                     | 1880                        | 1900                      |                        |             |
| 20              | QPSK       | 1       | 0         | 22.09                    | 22.10                       | 22.13                     | 22.8                   | 0           |
| 20              | QPSK       | 1       | 49        | 21.95                    | 22.12                       | 22.04                     |                        |             |
| 20              | QPSK       | 1       | 99        | 21.98                    | 22.08                       | 21.97                     |                        |             |
| 20              | QPSK       | 50      | 0         | 22.06                    | 22.20                       | 22.23                     | 22.8                   | 0           |
| 20              | QPSK       | 50      | 24        | 22.14                    | 22.22                       | 22.18                     |                        |             |
| 20              | QPSK       | 50      | 50        | 22.13                    | 22.18                       | 22.20                     |                        |             |
| 20              | QPSK       | 100     | 0         | 22.16                    | 22.21                       | 22.24                     | 22.8                   | 0           |
| 20              | 16QAM      | 1       | 0         | 22.45                    | 22.43                       | 22.45                     |                        |             |
| 20              | 16QAM      | 1       | 49        | 22.37                    | 22.46                       | 22.38                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 22.34                    | 22.38                       | 22.32                     | 22                     | 0.8         |
| 20              | 16QAM      | 50      | 0         | 21.75                    | 21.81                       | 21.76                     |                        |             |
| 20              | 16QAM      | 50      | 24        | 21.84                    | 21.84                       | 21.84                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 21.81                    | 21.89                       | 21.81                     | 22                     | 0.8         |
| 20              | 16QAM      | 100     | 0         | 21.81                    | 21.80                       | 21.82                     |                        |             |
| 20              | 64QAM      | 1       | 0         | 21.91                    | 21.90                       | 21.96                     |                        |             |
| 20              | 64QAM      | 1       | 49        | 21.85                    | 21.98                       | 21.91                     | 22                     | 0.8         |
| 20              | 64QAM      | 1       | 99        | 21.94                    | 21.95                       | 21.83                     |                        |             |
| 20              | 64QAM      | 50      | 0         | 20.78                    | 20.84                       | 20.77                     | 21                     | 1.8         |
| 20              | 64QAM      | 50      | 24        | 20.87                    | 20.85                       | 20.86                     |                        |             |
| 20              | 64QAM      | 50      | 50        | 20.84                    | 20.89                       | 20.82                     |                        |             |
| 20              | 64QAM      | 100     | 0         | 20.83                    | 20.81                       | 20.83                     | 19                     | 3.8         |
| 20              | 256QAM     | 1       | 0         | 18.73                    | 18.70                       | 18.90                     |                        |             |
| 20              | 256QAM     | 1       | 49        | 18.81                    | 18.97                       | 18.80                     |                        |             |
| 20              | 256QAM     | 1       | 99        | 18.99                    | 18.98                       | 18.88                     | 19                     | 3.8         |
| 20              | 256QAM     | 50      | 0         | 18.71                    | 18.75                       | 18.72                     |                        |             |
| 20              | 256QAM     | 50      | 24        | 18.78                    | 18.74                       | 18.81                     |                        |             |
| 20              | 256QAM     | 50      | 50        | 18.83                    | 18.90                       | 18.75                     | 19                     | 3.8         |
| 20              | 256QAM     | 100     | 0         | 18.82                    | 18.81                       | 18.70                     |                        |             |
| Channel         |            |         |           | 18675                    | 18900                       | 19125                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1857.5                   | 1880                        | 1902.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 22.01                    | 22.07                       | 22.05                     | 22.8                   | 0           |
| 15              | QPSK       | 1       | 37        | 21.87                    | 22.12                       | 21.95                     |                        |             |
| 15              | QPSK       | 1       | 74        | 21.90                    | 22.03                       | 21.87                     |                        |             |
| 15              | QPSK       | 36      | 0         | 22.06                    | 22.18                       | 22.12                     | 22.8                   | 0           |
| 15              | QPSK       | 36      | 20        | 22.13                    | 22.16                       | 22.18                     |                        |             |
| 15              | QPSK       | 36      | 39        | 22.13                    | 22.29                       | 22.12                     |                        |             |
| 15              | QPSK       | 75      | 0         | 22.10                    | 22.21                       | 22.20                     | 22.8                   | 0           |
| 15              | 16QAM      | 1       | 0         | 22.44                    | 22.43                       | 22.38                     |                        |             |
| 15              | 16QAM      | 1       | 37        | 22.27                    | 22.45                       | 22.38                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 22.30                    | 22.32                       | 22.23                     | 22                     | 0.8         |
| 15              | 16QAM      | 36      | 0         | 21.66                    | 21.72                       | 21.67                     |                        |             |
| 15              | 16QAM      | 36      | 20        | 21.79                    | 21.80                       | 21.74                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 21.76                    | 21.80                       | 21.79                     | 22                     | 0.8         |
| 15              | 16QAM      | 75      | 0         | 21.73                    | 21.78                       | 21.73                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 21.86                    | 21.82                       | 21.94                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 21.75                    | 21.97                       | 21.90                     | 22                     | 0.8         |
| 15              | 64QAM      | 1       | 74        | 21.94                    | 21.87                       | 21.79                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 20.74                    | 20.83                       | 20.71                     |                        |             |
| 15              | 64QAM      | 36      | 20        | 20.85                    | 20.81                       | 20.83                     | 21                     | 1.8         |



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|                 |        |    |    |        |       |        |                        |             |
|-----------------|--------|----|----|--------|-------|--------|------------------------|-------------|
| 15              | 64QAM  | 36 | 39 | 20.83  | 20.88 | 20.75  |                        |             |
| 15              | 64QAM  | 75 | 0  | 20.74  | 20.72 | 20.76  |                        |             |
| 15              | 256QAM | 1  | 0  | 18.65  | 18.62 | 18.89  |                        |             |
| 15              | 256QAM | 1  | 37 | 18.76  | 18.94 | 18.76  | 19                     | 3.8         |
| 15              | 256QAM | 1  | 74 | 18.89  | 18.94 | 18.82  |                        |             |
| 15              | 256QAM | 36 | 0  | 18.69  | 18.66 | 18.71  |                        |             |
| 15              | 256QAM | 36 | 20 | 18.71  | 18.71 | 18.75  | 19                     | 3.8         |
| 15              | 256QAM | 36 | 39 | 18.79  | 18.84 | 18.67  |                        |             |
| 15              | 256QAM | 75 | 0  | 18.77  | 18.71 | 18.67  |                        |             |
| Channel         |        |    |    | 18650  | 18900 | 19150  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |        |    |    | 1855   | 1880  | 1905   |                        |             |
| 10              | QPSK   | 1  | 0  | 22.04  | 22.10 | 22.12  | 22.8                   | 0           |
| 10              | QPSK   | 1  | 25 | 21.88  | 22.12 | 22.04  |                        |             |
| 10              | QPSK   | 1  | 49 | 21.91  | 22.01 | 21.94  |                        |             |
| 10              | QPSK   | 25 | 0  | 21.98  | 22.15 | 22.04  | 22.8                   | 0           |
| 10              | QPSK   | 25 | 12 | 22.11  | 22.19 | 22.15  |                        |             |
| 10              | QPSK   | 25 | 25 | 22.07  | 22.21 | 22.15  |                        |             |
| 10              | QPSK   | 50 | 0  | 22.15  | 22.12 | 22.19  | 22.8                   | 0           |
| 10              | 16QAM  | 1  | 0  | 22.37  | 22.34 | 22.45  |                        |             |
| 10              | 16QAM  | 1  | 25 | 22.37  | 22.39 | 22.38  |                        |             |
| 10              | 16QAM  | 1  | 49 | 22.33  | 22.29 | 22.22  | 22                     | 0.8         |
| 10              | 16QAM  | 25 | 0  | 21.69  | 21.74 | 21.74  |                        |             |
| 10              | 16QAM  | 25 | 12 | 21.81  | 21.80 | 21.76  |                        |             |
| 10              | 16QAM  | 25 | 25 | 21.74  | 21.82 | 21.78  | 22                     | 0.8         |
| 10              | 16QAM  | 50 | 0  | 21.81  | 21.75 | 21.82  |                        |             |
| 10              | 64QAM  | 1  | 0  | 21.86  | 21.83 | 21.96  |                        |             |
| 10              | 64QAM  | 1  | 25 | 21.81  | 21.89 | 21.84  | 22                     | 0.8         |
| 10              | 64QAM  | 1  | 49 | 21.89  | 21.92 | 21.81  |                        |             |
| 10              | 64QAM  | 25 | 0  | 20.78  | 20.76 | 20.77  |                        |             |
| 10              | 64QAM  | 25 | 12 | 20.81  | 20.82 | 20.80  | 21                     | 1.8         |
| 10              | 64QAM  | 25 | 25 | 20.82  | 20.79 | 20.73  |                        |             |
| 10              | 64QAM  | 50 | 0  | 20.82  | 20.76 | 20.82  |                        |             |
| 10              | 256QAM | 1  | 0  | 18.72  | 18.64 | 18.83  | 19                     | 3.8         |
| 10              | 256QAM | 1  | 25 | 18.80  | 18.95 | 18.79  |                        |             |
| 10              | 256QAM | 1  | 49 | 18.91  | 18.98 | 18.86  |                        |             |
| 10              | 256QAM | 25 | 0  | 18.69  | 18.71 | 18.65  | 19                     | 3.8         |
| 10              | 256QAM | 25 | 12 | 18.72  | 18.65 | 18.71  |                        |             |
| 10              | 256QAM | 25 | 25 | 18.75  | 18.83 | 18.72  |                        |             |
| 10              | 256QAM | 50 | 0  | 18.76  | 18.80 | 18.61  |                        |             |
| Channel         |        |    |    | 18625  | 18900 | 19175  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |        |    |    | 1852.5 | 1880  | 1907.5 |                        |             |
| 5               | QPSK   | 1  | 0  | 22.02  | 22.09 | 22.03  | 22.8                   | 0           |
| 5               | QPSK   | 1  | 12 | 21.88  | 22.13 | 21.99  |                        |             |
| 5               | QPSK   | 1  | 24 | 21.95  | 22.07 | 21.96  |                        |             |
| 5               | QPSK   | 12 | 0  | 21.97  | 22.20 | 22.10  | 22.8                   | 0           |
| 5               | QPSK   | 12 | 7  | 22.04  | 22.23 | 22.20  |                        |             |
| 5               | QPSK   | 12 | 13 | 22.08  | 22.28 | 22.15  |                        |             |
| 5               | QPSK   | 25 | 0  | 22.14  | 22.18 | 22.18  | 22.8                   | 0           |
| 5               | 16QAM  | 1  | 0  | 22.40  | 22.36 | 22.44  |                        |             |
| 5               | 16QAM  | 1  | 12 | 22.28  | 22.41 | 22.31  |                        |             |
| 5               | 16QAM  | 1  | 24 | 22.25  | 22.33 | 22.30  | 22                     | 0.8         |
| 5               | 16QAM  | 12 | 0  | 21.68  | 21.80 | 21.71  |                        |             |
| 5               | 16QAM  | 12 | 7  | 21.77  | 21.79 | 21.74  |                        |             |
| 5               | 16QAM  | 12 | 13 | 21.75  | 21.79 | 21.81  | 22                     | 0.8         |
| 5               | 16QAM  | 25 | 0  | 21.72  | 21.77 | 21.73  |                        |             |
| 5               | 64QAM  | 1  | 0  | 21.82  | 21.86 | 21.88  |                        |             |



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|                 |        |    |    |        |       |        |                     |          |
|-----------------|--------|----|----|--------|-------|--------|---------------------|----------|
| 5               | 64QAM  | 1  | 12 | 21.82  | 21.91 | 21.82  | 21                  | 1.8      |
| 5               | 64QAM  | 1  | 24 | 21.89  | 21.85 | 21.77  |                     |          |
| 5               | 64QAM  | 12 | 0  | 20.77  | 20.75 | 20.74  |                     |          |
| 5               | 64QAM  | 12 | 7  | 20.86  | 20.76 | 20.85  |                     |          |
| 5               | 64QAM  | 12 | 13 | 20.78  | 20.83 | 20.74  |                     |          |
| 5               | 64QAM  | 25 | 0  | 20.73  | 20.74 | 20.80  | 19                  | 3.8      |
| 5               | 256QAM | 1  | 0  | 18.65  | 18.60 | 18.88  |                     |          |
| 5               | 256QAM | 1  | 12 | 18.80  | 18.89 | 18.72  |                     |          |
| 5               | 256QAM | 1  | 24 | 18.90  | 18.94 | 18.86  | 19                  | 3.8      |
| 5               | 256QAM | 12 | 0  | 18.61  | 18.72 | 18.71  |                     |          |
| 5               | 256QAM | 12 | 7  | 18.72  | 18.72 | 18.78  |                     |          |
| 5               | 256QAM | 12 | 13 | 18.79  | 18.87 | 18.74  |                     |          |
| 5               | 256QAM | 25 | 0  | 18.81  | 18.79 | 18.69  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 18615  | 18900 | 19185  |                     |          |
| Frequency (MHz) |        |    |    | 1851.5 | 1880  | 1908.5 | 22.8                | 0        |
| 3               | QPSK   | 1  | 0  | 22.02  | 22.06 | 22.11  |                     |          |
| 3               | QPSK   | 1  | 8  | 21.86  | 22.05 | 22.04  |                     |          |
| 3               | QPSK   | 1  | 14 | 21.98  | 22.07 | 21.88  | 22.8                | 0        |
| 3               | QPSK   | 8  | 0  | 22.06  | 22.11 | 22.08  |                     |          |
| 3               | QPSK   | 8  | 4  | 22.06  | 22.18 | 22.15  |                     |          |
| 3               | QPSK   | 8  | 7  | 22.09  | 22.21 | 22.20  |                     |          |
| 3               | QPSK   | 15 | 0  | 22.13  | 22.19 | 22.16  | 22.8                | 0        |
| 3               | 16QAM  | 1  | 0  | 22.40  | 22.35 | 22.38  |                     |          |
| 3               | 16QAM  | 1  | 8  | 22.35  | 22.37 | 22.30  |                     |          |
| 3               | 16QAM  | 1  | 14 | 22.28  | 22.33 | 22.29  | 22                  | 0.8      |
| 3               | 16QAM  | 8  | 0  | 21.71  | 21.71 | 21.68  |                     |          |
| 3               | 16QAM  | 8  | 4  | 21.82  | 21.79 | 21.84  |                     |          |
| 3               | 16QAM  | 8  | 7  | 21.80  | 21.84 | 21.77  |                     |          |
| 3               | 16QAM  | 15 | 0  | 21.80  | 21.73 | 21.82  | 22                  | 0.8      |
| 3               | 64QAM  | 1  | 0  | 21.85  | 21.84 | 21.89  |                     |          |
| 3               | 64QAM  | 1  | 8  | 21.80  | 21.97 | 21.86  |                     |          |
| 3               | 64QAM  | 1  | 14 | 21.92  | 21.94 | 21.78  | 21                  | 1.8      |
| 3               | 64QAM  | 8  | 0  | 20.73  | 20.84 | 20.76  |                     |          |
| 3               | 64QAM  | 8  | 4  | 20.85  | 20.84 | 20.77  |                     |          |
| 3               | 64QAM  | 8  | 7  | 20.81  | 20.87 | 20.75  |                     |          |
| 3               | 64QAM  | 15 | 0  | 20.75  | 20.77 | 20.77  | 19                  | 3.8      |
| 3               | 256QAM | 1  | 0  | 18.67  | 18.63 | 18.88  |                     |          |
| 3               | 256QAM | 1  | 8  | 18.80  | 18.97 | 18.80  |                     |          |
| 3               | 256QAM | 1  | 14 | 18.89  | 18.93 | 18.81  | 19                  | 3.8      |
| 3               | 256QAM | 8  | 0  | 18.62  | 18.73 | 18.63  |                     |          |
| 3               | 256QAM | 8  | 4  | 18.74  | 18.64 | 18.71  |                     |          |
| 3               | 256QAM | 8  | 7  | 18.81  | 18.82 | 18.67  |                     |          |
| 3               | 256QAM | 15 | 0  | 18.76  | 18.75 | 18.60  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 18607  | 18900 | 19193  |                     |          |
| Frequency (MHz) |        |    |    | 1850.7 | 1880  | 1909.3 | 22.8                | 0        |
| 1.4             | QPSK   | 1  | 0  | 21.87  | 22.01 | 21.93  |                     |          |
| 1.4             | QPSK   | 1  | 3  | 21.95  | 22.11 | 21.99  |                     |          |
| 1.4             | QPSK   | 1  | 5  | 21.90  | 22.08 | 21.95  |                     |          |
| 1.4             | QPSK   | 3  | 0  | 21.93  | 22.05 | 21.99  |                     |          |
| 1.4             | QPSK   | 3  | 1  | 21.96  | 22.12 | 21.99  |                     |          |
| 1.4             | QPSK   | 3  | 3  | 21.93  | 22.11 | 21.98  |                     |          |
| 1.4             | QPSK   | 6  | 0  | 21.95  | 22.11 | 22.04  | 22.8                | 0        |
| 1.4             | 16QAM  | 1  | 0  | 22.28  | 22.36 | 22.27  | 22.8                | 0        |
| 1.4             | 16QAM  | 1  | 3  | 22.31  | 22.45 | 22.36  |                     |          |
| 1.4             | 16QAM  | 1  | 5  | 22.21  | 22.43 | 22.29  |                     |          |
| 1.4             | 16QAM  | 3  | 0  | 21.98  | 22.10 | 22.08  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 18607  | 18900 | 19193  |                     |          |
| Frequency (MHz) |        |    |    | 1850.7 | 1880  | 1909.3 | 22.8                | 0        |
| 1.4             | QPSK   | 1  | 0  | 21.87  | 22.01 | 21.93  |                     |          |
| 1.4             | QPSK   | 1  | 3  | 21.95  | 22.11 | 21.99  |                     |          |
| 1.4             | QPSK   | 1  | 5  | 21.90  | 22.08 | 21.95  | 22.8                | 0        |
| 1.4             | QPSK   | 3  | 0  | 21.93  | 22.05 | 21.99  |                     |          |
| 1.4             | QPSK   | 3  | 1  | 21.96  | 22.12 | 21.99  |                     |          |
| 1.4             | QPSK   | 3  | 3  | 21.93  | 22.11 | 21.98  |                     |          |
| 1.4             | QPSK   | 6  | 0  | 21.95  | 22.11 | 22.04  | 22.8                | 0        |
| 1.4             | 16QAM  | 1  | 0  | 22.28  | 22.36 | 22.27  | 22.8                | 0        |
| 1.4             | 16QAM  | 1  | 3  | 22.31  | 22.45 | 22.36  |                     |          |
| 1.4             | 16QAM  | 1  | 5  | 22.21  | 22.43 | 22.29  |                     |          |
| 1.4             | 16QAM  | 3  | 0  | 21.98  | 22.10 | 22.08  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 18607  | 18900 | 19193  |                     |          |
| Frequency (MHz) |        |    |    | 1850.7 | 1880  | 1909.3 | 22.8                | 0        |
| 1.4             | QPSK   | 1  | 0  | 21.87  | 22.01 | 21.93  |                     |          |
| 1.4             | QPSK   | 1  | 3  | 21.95  | 22.11 | 21.99  |                     |          |
| 1.4             | QPSK   | 1  | 5  | 21.90  | 22.08 | 21.95  | 22.8                | 0        |
| 1.4             | QPSK   | 3  | 0  | 21.93  | 22.05 | 21.99  |                     |          |
| 1.4             | QPSK   | 3  | 1  | 21.96  | 22.12 | 21.99  |                     |          |
| 1.4             | QPSK   | 3  | 3  | 21.93  | 22.11 | 21.98  |                     |          |
| 1.4             | QPSK   | 6  | 0  | 21.95  | 22.11 | 22.04  | 22.8                | 0        |
| 1.4             | 16QAM  | 1  | 0  | 22.28  | 22.36 | 22.27  | 22.8                | 0        |
| 1.4             | 16QAM  | 1  | 3  | 22.31  | 22.45 | 22.36  |                     |          |
| 1.4             | 16QAM  | 1  | 5  | 22.21  | 22.43 | 22.29  |                     |          |
| 1.4             | 16QAM  | 3  | 0  | 21.98  | 22.10 | 22.08  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 18607  | 18900 | 19193  |                     |          |
| Frequency (MHz) |        |    |    | 1850.7 | 1880  | 1909.3 | 22.8                | 0        |
| 1.4             | QPSK   | 1  | 0  | 21.87  | 22.01 | 21.93  |                     |          |
| 1.4             | QPSK   | 1  | 3  | 21.95  | 22.11 | 21.99  |                     |          |
| 1.4             | QPSK   | 1  | 5  | 21.90  | 22.08 | 21.95  | 22.8                | 0        |
| 1.4             | QPSK   | 3  | 0  | 21.93  | 22.05 | 21.99  |                     |          |
| 1.4             | QPSK   | 3  | 1  | 21.96  | 22.12 | 21.99  |                     |          |
| 1.4             | QPSK   | 3  | 3  | 21.93  | 22.11 | 21.98  |                     |          |
| 1.4             | QPSK   | 6  | 0  | 21.95  | 22.11 | 22.04  | 22.8                | 0        |
| 1.4             | 16QAM  | 1  | 0  | 22.28  | 22.36 | 22.27  | 22.8                | 0        |
| 1.4             | 16QAM  | 1  | 3  | 22.31  | 22.45 | 22.36  |                     |          |
| 1.4             | 16QAM  | 1  | 5  | 22.21  | 22.43 | 22.29  |                     |          |
| 1.4             | 16QAM  | 3  | 0  | 21.98  | 22.10 | 22.08  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 18607  | 18900 | 19193  |                     |          |
| Frequency (MHz) |        |    |    | 1850.7 | 1880  | 1909.3 | 22.8                | 0        |
| 1.4             | QPSK   | 1  | 0  | 21.87  | 22.01 | 21.93  |                     |          |
| 1.4             | QPSK   | 1  | 3  | 21.95  | 22.11 | 21.99  |                     |          |
| 1.4             | QPSK   | 1  | 5  | 21.90  | 22.08 | 21.95  | 22.8                | 0        |
| 1.4             | QPSK   | 3  | 0  | 21.93  | 22.05 | 21.99  |                     |          |
| 1.4             | QPSK   | 3  | 1  | 21.96  | 22.12 | 21.99  |                     |          |
| 1.4             | QPSK   | 3  | 3  | 21.93  | 22.11 | 21.98  |                     |          |
| 1.4             | QPSK   | 6  | 0  | 21.95  | 22.11 | 22.04  | 22.8                | 0        |
| 1.4             | 16QAM  | 1  | 0  | 22.28  | 22.36 | 22.27  | 22.8                | 0        |
| 1.4             | 16QAM  | 1  | 3  | 22.31  | 22.45 | 22.36  |                     |          |
| 1.4             | 16QAM  | 1  | 5  | 22.21  | 22.43 | 22.29  |                     |          |
| 1.4             | 16QAM  | 3  | 0  | 21.98  | 22.10 | 22.08  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 18607  | 18900 | 19193  |                     |          |
| Frequency (MHz) |        |    |    | 1850.7 | 1880  | 1909.3 | 22.8                | 0        |
| 1.4             | QPSK   | 1  | 0  | 21.87  | 22.01 | 21.93  |                     |          |
| 1.4             | QPSK   | 1  | 3  | 21.95  | 22.11 | 21.99  |                     |          |
| 1.4             | QPSK   | 1  | 5  | 21.90  | 22.08 | 21.95  | 22.8                | 0        |
| 1.4             | QPSK   | 3  | 0  | 21.93  | 22.05 | 21.99  |                     |          |
| 1.4             | QPSK   | 3  | 1  | 21.96  | 22.12 | 21.99  |                     |          |
| 1.4             | QPSK   | 3  | 3  | 21.93  | 22.11 | 21.98  |                     |          |
| 1.4             | QPSK   | 6  | 0  | 21.95  | 22.11 | 22.04  | 22.8                | 0        |
| 1.4             | 16QAM  | 1  | 0  | 22.28  | 22.36 | 22.27  | 22.8                | 0        |
| 1.4             | 16QAM  | 1  | 3  | 22.31  | 22.45 | 22.36  |                     |          |
| 1.4             | 16QAM  | 1  | 5  | 22.21  | 22.43 | 22.29  |                     |          |
| 1.4             | 16QAM  | 3  | 0  | 21.98  | 22.10 | 22.08  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 18607  | 18900 | 19193  |                     |          |
| Frequency (MHz) |        |    |    | 1850.7 | 1880  | 1909.3 | 22.8                | 0        |
| 1.4             | QPSK   | 1  | 0  | 21.87  | 22.01 | 21.93  |                     |          |
| 1.4             | QPSK   | 1  | 3  | 21.95  | 22.11 | 21.99  |                     |          |
| 1.4             | QPSK   | 1  | 5  | 21.90  | 22.08 | 21.95  | 22.8                | 0        |
| 1.4             | QPSK   | 3  | 0  | 21.93  | 22.05 | 21.99  |                     |          |
| 1.4             | QPSK   | 3  | 1  | 21.96  | 22.12 | 21.99  |                     |          |
| 1.4             | QPSK   | 3  | 3  | 21.93  | 22.11 | 21.98  |                     |          |
| 1.4             | QPSK   | 6  | 0  | 21.95  | 22.11 | 22.04  | 22.8                | 0        |
| 1.4             | 16QAM  | 1  | 0  | 22.28  | 22.36 | 22.27  | 22.8                | 0        |
| 1.4             | 16QAM  | 1  | 3  | 22.31  | 22.45 | 22.36  |                     |          |
| 1.4             | 16QAM  | 1  | 5  | 22.21  | 22.43 | 22.29  |                     |          |
| 1.4             | 16QAM  | 3  | 0  | 21.98  | 22.10 | 22.08  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 18607  | 18900 | 19193  |                     |          |
| Frequency (MHz) |        |    |    | 1850.7 | 1880  | 1909.3 | 22.8                | 0        |
| 1.4             | QPSK   | 1  | 0  | 21.87  | 22.01 | 21.93  |                     |          |
| 1.4             | QPSK   | 1  | 3  | 21.95  | 22.11 | 21.99  |                     |          |
| 1.4             | QPSK   | 1  | 5  | 21.90  | 22.08 | 21.95  | 22.8                | 0        |



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|     |        |   |   |       |       |       |    |     |
|-----|--------|---|---|-------|-------|-------|----|-----|
| 1.4 | 16QAM  | 3 | 1 | 22.04 | 22.25 | 22.12 |    |     |
| 1.4 | 16QAM  | 3 | 3 | 21.98 | 22.17 | 22.07 |    |     |
| 1.4 | 16QAM  | 6 | 0 | 21.72 | 21.79 | 21.72 | 22 | 0.8 |
| 1.4 | 64QAM  | 1 | 0 | 21.87 | 21.86 | 21.84 | 22 | 0.8 |
| 1.4 | 64QAM  | 1 | 3 | 21.95 | 22.00 | 21.90 |    |     |
| 1.4 | 64QAM  | 1 | 5 | 21.84 | 21.95 | 21.81 |    |     |
| 1.4 | 64QAM  | 3 | 0 | 21.83 | 21.84 | 21.82 |    |     |
| 1.4 | 64QAM  | 3 | 1 | 21.85 | 21.96 | 21.85 |    |     |
| 1.4 | 64QAM  | 3 | 3 | 21.83 | 21.91 | 21.76 |    |     |
| 1.4 | 64QAM  | 6 | 0 | 20.69 | 20.73 | 20.67 | 21 | 1.8 |
| 1.4 | 256QAM | 1 | 0 | 18.72 | 18.69 | 18.84 | 19 | 3.8 |
| 1.4 | 256QAM | 1 | 3 | 18.81 | 18.93 | 18.80 |    |     |
| 1.4 | 256QAM | 1 | 5 | 18.93 | 18.92 | 18.79 |    |     |
| 1.4 | 256QAM | 3 | 0 | 18.61 | 18.70 | 18.68 |    |     |
| 1.4 | 256QAM | 3 | 1 | 18.70 | 18.68 | 18.79 |    |     |
| 1.4 | 256QAM | 3 | 3 | 18.73 | 18.81 | 18.65 |    |     |
| 1.4 | 256QAM | 6 | 0 | 18.81 | 18.77 | 18.61 | 19 | 3.8 |



**<LTE Band 4>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 20050                 | 20175                    | 20300                  |                     |          |
| Frequency (MHz) |            |         |           | 1720                  | 1732.5                   | 1745                   |                     |          |
| 20              | QPSK       | 1       | 0         | 16.72                 | 16.66                    | 16.55                  | 17.7                | 0        |
| 20              | QPSK       | 1       | 49        | 16.54                 | 16.50                    | 16.48                  |                     |          |
| 20              | QPSK       | 1       | 99        | 16.46                 | 16.44                    | 16.27                  |                     |          |
| 20              | QPSK       | 50      | 0         | 16.75                 | 16.61                    | 16.54                  | 17.7                | 0        |
| 20              | QPSK       | 50      | 24        | 16.80                 | 16.66                    | 16.67                  |                     |          |
| 20              | QPSK       | 50      | 50        | 16.64                 | 16.57                    | 16.50                  |                     |          |
| 20              | QPSK       | 100     | 0         | 16.69                 | 16.65                    | 16.62                  | 17.7                | 0        |
| 20              | 16QAM      | 1       | 0         | 17.04                 | 16.83                    | 16.96                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 16.96                 | 16.85                    | 16.79                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 16.84                 | 16.74                    | 16.67                  | 17.7                | 0        |
| 20              | 16QAM      | 50      | 0         | 16.69                 | 16.64                    | 16.61                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 16.79                 | 16.66                    | 16.56                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 16.75                 | 16.57                    | 16.50                  | 17.7                | 0        |
| 20              | 16QAM      | 100     | 0         | 16.73                 | 16.60                    | 16.58                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 16.89                 | 16.76                    | 16.74                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 16.88                 | 16.63                    | 16.69                  | 17.7                | 0        |
| 20              | 64QAM      | 1       | 99        | 16.73                 | 16.73                    | 16.52                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 16.71                 | 16.65                    | 16.61                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 16.84                 | 16.61                    | 16.58                  | 17.7                | 0        |
| 20              | 64QAM      | 50      | 50        | 16.69                 | 16.58                    | 16.49                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 16.76                 | 16.62                    | 16.57                  |                     |          |
| 20              | 256QAM     | 1       | 0         | 16.51                 | 16.37                    | 16.35                  | 17.7                | 0        |
| 20              | 256QAM     | 1       | 49        | 16.48                 | 16.29                    | 16.23                  |                     |          |
| 20              | 256QAM     | 1       | 99        | 16.58                 | 16.37                    | 16.36                  |                     |          |
| 20              | 256QAM     | 50      | 0         | 16.50                 | 16.38                    | 16.39                  | 17.7                | 0        |
| 20              | 256QAM     | 50      | 24        | 16.54                 | 16.36                    | 16.30                  |                     |          |
| 20              | 256QAM     | 50      | 50        | 16.55                 | 16.34                    | 16.31                  |                     |          |
| 20              | 256QAM     | 100     | 0         | 16.46                 | 16.42                    | 16.25                  |                     |          |
| Channel         |            |         |           | 20025                 | 20175                    | 20325                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1717.5                | 1732.5                   | 1747.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 16.72                 | 16.68                    | 16.52                  | 17.7                | 0        |
| 15              | QPSK       | 1       | 37        | 16.54                 | 16.53                    | 16.42                  |                     |          |
| 15              | QPSK       | 1       | 74        | 16.44                 | 16.45                    | 16.32                  |                     |          |
| 15              | QPSK       | 36      | 0         | 16.73                 | 16.64                    | 16.56                  | 17.7                | 0        |
| 15              | QPSK       | 36      | 20        | 16.78                 | 16.63                    | 16.65                  |                     |          |
| 15              | QPSK       | 36      | 39        | 16.68                 | 16.60                    | 16.55                  |                     |          |
| 15              | QPSK       | 75      | 0         | 16.68                 | 16.68                    | 16.64                  | 17.7                | 0        |
| 15              | 16QAM      | 1       | 0         | 16.99                 | 16.92                    | 16.97                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 16.95                 | 16.88                    | 16.79                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 16.84                 | 16.79                    | 16.69                  | 17.7                | 0        |
| 15              | 16QAM      | 36      | 0         | 16.72                 | 16.66                    | 16.57                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 16.80                 | 16.61                    | 16.57                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 16.77                 | 16.67                    | 16.52                  | 17.7                | 0        |
| 15              | 16QAM      | 75      | 0         | 16.74                 | 16.62                    | 16.57                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 16.89                 | 16.86                    | 16.74                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 16.92                 | 16.65                    | 16.70                  | 17.7                | 0        |
| 15              | 64QAM      | 1       | 74        | 16.77                 | 16.64                    | 16.57                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 16.73                 | 16.67                    | 16.57                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 16.84                 | 16.59                    | 16.62                  | 17.7                | 0        |
| 15              | 64QAM      | 36      | 39        | 16.71                 | 16.63                    | 16.54                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 16.76                 | 16.58                    | 16.60                  |                     |          |



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|                 |        |    |    |        |        |        |                     |          |
|-----------------|--------|----|----|--------|--------|--------|---------------------|----------|
| 15              | 256QAM | 1  | 0  | 16.54  | 16.37  | 16.37  | 17.7                | 0        |
| 15              | 256QAM | 1  | 37 | 16.48  | 16.37  | 16.30  |                     |          |
| 15              | 256QAM | 1  | 74 | 16.58  | 16.43  | 16.36  |                     |          |
| 15              | 256QAM | 36 | 0  | 16.49  | 16.32  | 16.39  | 17.7                | 0        |
| 15              | 256QAM | 36 | 20 | 16.52  | 16.39  | 16.31  |                     |          |
| 15              | 256QAM | 36 | 39 | 16.49  | 16.34  | 16.30  |                     |          |
| 15              | 256QAM | 75 | 0  | 16.46  | 16.36  | 16.22  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 20000  | 20175  | 20350  |                     |          |
| Frequency (MHz) |        |    |    | 1715   | 1732.5 | 1750   |                     |          |
| 10              | QPSK   | 1  | 0  | 16.78  | 16.60  | 16.59  | 17.7                | 0        |
| 10              | QPSK   | 1  | 25 | 16.56  | 16.59  | 16.40  |                     |          |
| 10              | QPSK   | 1  | 49 | 16.53  | 16.48  | 16.24  |                     |          |
| 10              | QPSK   | 25 | 0  | 16.79  | 16.60  | 16.56  | 17.7                | 0        |
| 10              | QPSK   | 25 | 12 | 16.81  | 16.66  | 16.66  |                     |          |
| 10              | QPSK   | 25 | 25 | 16.64  | 16.51  | 16.56  |                     |          |
| 10              | QPSK   | 50 | 0  | 16.66  | 16.64  | 16.65  | 17.7                | 0        |
| 10              | 16QAM  | 1  | 0  | 17.02  | 16.89  | 16.97  |                     |          |
| 10              | 16QAM  | 1  | 25 | 17.03  | 16.92  | 16.78  |                     |          |
| 10              | 16QAM  | 1  | 49 | 16.89  | 16.80  | 16.67  | 17.7                | 0        |
| 10              | 16QAM  | 25 | 0  | 16.74  | 16.63  | 16.61  |                     |          |
| 10              | 16QAM  | 25 | 12 | 16.78  | 16.70  | 16.64  |                     |          |
| 10              | 16QAM  | 25 | 25 | 16.71  | 16.62  | 16.51  | 17.7                | 0        |
| 10              | 16QAM  | 50 | 0  | 16.78  | 16.60  | 16.54  |                     |          |
| 10              | 64QAM  | 1  | 0  | 16.90  | 16.84  | 16.70  |                     |          |
| 10              | 64QAM  | 1  | 25 | 16.92  | 16.60  | 16.67  | 17.7                | 0        |
| 10              | 64QAM  | 1  | 49 | 16.73  | 16.71  | 16.53  |                     |          |
| 10              | 64QAM  | 25 | 0  | 16.75  | 16.69  | 16.62  |                     |          |
| 10              | 64QAM  | 25 | 12 | 16.84  | 16.60  | 16.59  | 17.7                | 0        |
| 10              | 64QAM  | 25 | 25 | 16.70  | 16.65  | 16.48  |                     |          |
| 10              | 64QAM  | 50 | 0  | 16.77  | 16.66  | 16.58  |                     |          |
| 10              | 256QAM | 1  | 0  | 16.58  | 16.37  | 16.32  | 17.7                | 0        |
| 10              | 256QAM | 1  | 25 | 16.39  | 16.32  | 16.26  |                     |          |
| 10              | 256QAM | 1  | 49 | 16.57  | 16.40  | 16.33  |                     |          |
| 10              | 256QAM | 25 | 0  | 16.51  | 16.33  | 16.30  | 17.7                | 0        |
| 10              | 256QAM | 25 | 12 | 16.61  | 16.42  | 16.34  |                     |          |
| 10              | 256QAM | 25 | 25 | 16.48  | 16.44  | 16.32  |                     |          |
| 10              | 256QAM | 50 | 0  | 16.50  | 16.32  | 16.24  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 19975  | 20175  | 20375  |                     |          |
| Frequency (MHz) |        |    |    | 1712.5 | 1732.5 | 1752.5 |                     |          |
| 5               | QPSK   | 1  | 0  | 16.77  | 16.68  | 16.50  | 17.7                | 0        |
| 5               | QPSK   | 1  | 12 | 16.54  | 16.60  | 16.46  |                     |          |
| 5               | QPSK   | 1  | 24 | 16.45  | 16.43  | 16.23  |                     |          |
| 5               | QPSK   | 12 | 0  | 16.79  | 16.59  | 16.52  | 17.7                | 0        |
| 5               | QPSK   | 12 | 7  | 16.82  | 16.59  | 16.63  |                     |          |
| 5               | QPSK   | 12 | 13 | 16.69  | 16.60  | 16.55  |                     |          |
| 5               | QPSK   | 25 | 0  | 16.66  | 16.69  | 16.64  | 17.7                | 0        |
| 5               | 16QAM  | 1  | 0  | 17.06  | 16.86  | 16.97  |                     |          |
| 5               | 16QAM  | 1  | 12 | 16.97  | 16.91  | 16.76  |                     |          |
| 5               | 16QAM  | 1  | 24 | 16.89  | 16.80  | 16.66  | 17.7                | 0        |
| 5               | 16QAM  | 12 | 0  | 16.69  | 16.60  | 16.54  |                     |          |
| 5               | 16QAM  | 12 | 7  | 16.75  | 16.65  | 16.58  |                     |          |
| 5               | 16QAM  | 12 | 13 | 16.72  | 16.62  | 16.50  | 17.7                | 0        |
| 5               | 16QAM  | 25 | 0  | 16.79  | 16.63  | 16.55  |                     |          |
| 5               | 64QAM  | 1  | 0  | 16.92  | 16.84  | 16.69  |                     |          |
| 5               | 64QAM  | 1  | 12 | 16.94  | 16.60  | 16.62  | 17.7                | 0        |
| 5               | 64QAM  | 1  | 24 | 16.73  | 16.67  | 16.61  |                     |          |



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|                 |        |    |    |        |        |        |                        |             |
|-----------------|--------|----|----|--------|--------|--------|------------------------|-------------|
| 5               | 64QAM  | 12 | 0  | 16.73  | 16.67  | 16.58  | 17.7                   | 0           |
| 5               | 64QAM  | 12 | 7  | 16.87  | 16.67  | 16.57  |                        |             |
| 5               | 64QAM  | 12 | 13 | 16.71  | 16.63  | 16.47  |                        |             |
| 5               | 64QAM  | 25 | 0  | 16.71  | 16.56  | 16.59  |                        |             |
| 5               | 256QAM | 1  | 0  | 16.49  | 16.42  | 16.38  | 17.7                   | 0           |
| 5               | 256QAM | 1  | 12 | 16.43  | 16.31  | 16.30  |                        |             |
| 5               | 256QAM | 1  | 24 | 16.59  | 16.38  | 16.29  |                        |             |
| 5               | 256QAM | 12 | 0  | 16.49  | 16.33  | 16.29  | 17.7                   | 0           |
| 5               | 256QAM | 12 | 7  | 16.61  | 16.35  | 16.28  |                        |             |
| 5               | 256QAM | 12 | 13 | 16.56  | 16.37  | 16.33  |                        |             |
| 5               | 256QAM | 25 | 0  | 16.44  | 16.40  | 16.22  |                        |             |
| Channel         |        |    |    | 19965  | 20175  | 20385  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |        |    |    | 1711.5 | 1732.5 | 1753.5 |                        |             |
| 3               | QPSK   | 1  | 0  | 16.72  | 16.62  | 16.51  | 17.7                   | 0           |
| 3               | QPSK   | 1  | 8  | 16.62  | 16.57  | 16.39  |                        |             |
| 3               | QPSK   | 1  | 14 | 16.44  | 16.47  | 16.32  |                        |             |
| 3               | QPSK   | 8  | 0  | 16.77  | 16.67  | 16.59  | 17.7                   | 0           |
| 3               | QPSK   | 8  | 4  | 16.83  | 16.63  | 16.63  |                        |             |
| 3               | QPSK   | 8  | 7  | 16.62  | 16.60  | 16.46  |                        |             |
| 3               | QPSK   | 15 | 0  | 16.72  | 16.63  | 16.64  |                        |             |
| 3               | 16QAM  | 1  | 0  | 16.97  | 16.88  | 16.97  | 17.7                   | 0           |
| 3               | 16QAM  | 1  | 8  | 17.00  | 16.86  | 16.72  |                        |             |
| 3               | 16QAM  | 1  | 14 | 16.91  | 16.77  | 16.69  |                        |             |
| 3               | 16QAM  | 8  | 0  | 16.71  | 16.65  | 16.51  | 17.7                   | 0           |
| 3               | 16QAM  | 8  | 4  | 16.76  | 16.63  | 16.61  |                        |             |
| 3               | 16QAM  | 8  | 7  | 16.74  | 16.62  | 16.52  |                        |             |
| 3               | 16QAM  | 15 | 0  | 16.81  | 16.57  | 16.63  |                        |             |
| 3               | 64QAM  | 1  | 0  | 16.91  | 16.86  | 16.70  | 17.7                   | 0           |
| 3               | 64QAM  | 1  | 8  | 16.87  | 16.60  | 16.64  |                        |             |
| 3               | 64QAM  | 1  | 14 | 16.80  | 16.70  | 16.62  |                        |             |
| 3               | 64QAM  | 8  | 0  | 16.73  | 16.66  | 16.54  | 17.7                   | 0           |
| 3               | 64QAM  | 8  | 4  | 16.84  | 16.57  | 16.56  |                        |             |
| 3               | 64QAM  | 8  | 7  | 16.67  | 16.57  | 16.53  |                        |             |
| 3               | 64QAM  | 15 | 0  | 16.73  | 16.58  | 16.57  |                        |             |
| 3               | 256QAM | 1  | 0  | 16.56  | 16.38  | 16.31  | 17.7                   | 0           |
| 3               | 256QAM | 1  | 8  | 16.39  | 16.30  | 16.29  |                        |             |
| 3               | 256QAM | 1  | 14 | 16.57  | 16.47  | 16.30  |                        |             |
| 3               | 256QAM | 8  | 0  | 16.51  | 16.31  | 16.35  | 17.7                   | 0           |
| 3               | 256QAM | 8  | 4  | 16.56  | 16.44  | 16.34  |                        |             |
| 3               | 256QAM | 8  | 7  | 16.58  | 16.39  | 16.31  |                        |             |
| 3               | 256QAM | 15 | 0  | 16.50  | 16.32  | 16.29  |                        |             |
| Channel         |        |    |    | 19957  | 20175  | 20393  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |        |    |    | 1710.7 | 1732.5 | 1754.3 |                        |             |
| 1.4             | QPSK   | 1  | 0  | 16.73  | 16.65  | 16.59  | 17.7                   | 0           |
| 1.4             | QPSK   | 1  | 3  | 16.60  | 16.57  | 16.48  |                        |             |
| 1.4             | QPSK   | 1  | 5  | 16.43  | 16.42  | 16.32  |                        |             |
| 1.4             | QPSK   | 3  | 0  | 16.81  | 16.67  | 16.51  |                        |             |
| 1.4             | QPSK   | 3  | 1  | 16.75  | 16.63  | 16.67  |                        |             |
| 1.4             | QPSK   | 3  | 3  | 16.65  | 16.58  | 16.46  |                        |             |
| 1.4             | QPSK   | 6  | 0  | 16.68  | 16.72  | 16.71  | 17.7                   | 0           |
| 1.4             | 16QAM  | 1  | 0  | 16.99  | 16.87  | 16.97  | 17.7                   | 0           |
| 1.4             | 16QAM  | 1  | 3  | 16.95  | 16.92  | 16.71  |                        |             |
| 1.4             | 16QAM  | 1  | 5  | 16.87  | 16.78  | 16.63  |                        |             |
| 1.4             | 16QAM  | 3  | 0  | 16.73  | 16.57  | 16.60  |                        |             |
| 1.4             | 16QAM  | 3  | 1  | 16.74  | 16.65  | 16.54  |                        |             |
| 1.4             | 16QAM  | 3  | 3  | 16.74  | 16.67  | 16.52  |                        |             |



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|     |        |   |   |       |       |       |      |   |
|-----|--------|---|---|-------|-------|-------|------|---|
| 1.4 | 16QAM  | 6 | 0 | 16.73 | 16.60 | 16.54 | 17.7 | 0 |
| 1.4 | 64QAM  | 1 | 0 | 16.89 | 16.76 | 16.77 | 17.7 | 0 |
| 1.4 | 64QAM  | 1 | 3 | 16.90 | 16.61 | 16.63 |      |   |
| 1.4 | 64QAM  | 1 | 5 | 16.78 | 16.74 | 16.61 |      |   |
| 1.4 | 64QAM  | 3 | 0 | 16.69 | 16.65 | 16.58 |      |   |
| 1.4 | 64QAM  | 3 | 1 | 16.82 | 16.58 | 16.59 |      |   |
| 1.4 | 64QAM  | 3 | 3 | 16.74 | 16.67 | 16.47 |      |   |
| 1.4 | 64QAM  | 6 | 0 | 16.73 | 16.59 | 16.51 | 17.7 | 0 |
| 1.4 | 256QAM | 1 | 0 | 16.57 | 16.35 | 16.32 | 17.7 | 0 |
| 1.4 | 256QAM | 1 | 3 | 16.42 | 16.39 | 16.30 |      |   |
| 1.4 | 256QAM | 1 | 5 | 16.58 | 16.43 | 16.27 |      |   |
| 1.4 | 256QAM | 3 | 0 | 16.56 | 16.39 | 16.39 |      |   |
| 1.4 | 256QAM | 3 | 1 | 16.62 | 16.38 | 16.26 |      |   |
| 1.4 | 256QAM | 3 | 3 | 16.58 | 16.41 | 16.33 |      |   |
| 1.4 | 256QAM | 6 | 0 | 16.45 | 16.41 | 16.29 | 17.7 | 0 |



**<LTE Band 5>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 20450                 | 20525                    | 20600                  |                     |          |
| Frequency (MHz) |            |         |           | 829                   | 836.5                    | 844                    |                     |          |
| 10              | QPSK       | 1       | 0         | 23.97                 | 23.99                    | 23.89                  | 24                  | 0        |
| 10              | QPSK       | 1       | 25        | 23.88                 | 23.86                    | 23.83                  |                     |          |
| 10              | QPSK       | 1       | 49        | 23.85                 | 23.86                    | 23.78                  |                     |          |
| 10              | QPSK       | 25      | 0         | 22.61                 | 22.62                    | 22.61                  | 23                  | 1        |
| 10              | QPSK       | 25      | 12        | 22.67                 | 22.68                    | 22.59                  |                     |          |
| 10              | QPSK       | 25      | 25        | 22.64                 | 22.64                    | 22.59                  |                     |          |
| 10              | QPSK       | 50      | 0         | 22.66                 | 22.69                    | 22.57                  |                     |          |
| 10              | 16QAM      | 1       | 0         | 22.97                 | 22.88                    | 22.88                  | 23                  | 1        |
| 10              | 16QAM      | 1       | 25        | 22.88                 | 22.86                    | 22.85                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 22.86                 | 22.88                    | 22.76                  |                     |          |
| 10              | 16QAM      | 25      | 0         | 21.59                 | 21.60                    | 21.63                  | 22                  | 2        |
| 10              | 16QAM      | 25      | 12        | 21.70                 | 21.71                    | 21.60                  |                     |          |
| 10              | 16QAM      | 25      | 25        | 21.66                 | 21.63                    | 21.56                  |                     |          |
| 10              | 16QAM      | 50      | 0         | 21.65                 | 21.68                    | 21.59                  |                     |          |
| 10              | 64QAM      | 1       | 0         | 21.79                 | 21.77                    | 21.79                  | 22                  | 2        |
| 10              | 64QAM      | 1       | 25        | 21.78                 | 21.82                    | 21.77                  |                     |          |
| 10              | 64QAM      | 1       | 49        | 21.72                 | 21.76                    | 21.58                  |                     |          |
| 10              | 64QAM      | 25      | 0         | 20.63                 | 20.63                    | 20.64                  | 21                  | 3        |
| 10              | 64QAM      | 25      | 12        | 20.71                 | 20.73                    | 20.64                  |                     |          |
| 10              | 64QAM      | 25      | 25        | 20.68                 | 20.65                    | 20.63                  |                     |          |
| 10              | 64QAM      | 50      | 0         | 20.69                 | 20.70                    | 20.61                  |                     |          |
| 10              | 256QAM     | 1       | 0         | 19.01                 | 19.04                    | 19.05                  | 19.5                | 4.5      |
| 10              | 256QAM     | 1       | 25        | 19.11                 | 19.18                    | 19.05                  |                     |          |
| 10              | 256QAM     | 1       | 49        | 19.16                 | 19.19                    | 19.09                  |                     |          |
| 10              | 256QAM     | 25      | 0         | 19.00                 | 19.03                    | 19.11                  | 19.5                | 4.5      |
| 10              | 256QAM     | 25      | 12        | 18.99                 | 19.05                    | 19.08                  |                     |          |
| 10              | 256QAM     | 25      | 25        | 18.95                 | 18.98                    | 19.00                  |                     |          |
| 10              | 256QAM     | 50      | 0         | 19.00                 | 19.05                    | 19.06                  |                     |          |
| Channel         |            |         |           | 20425                 | 20525                    | 20625                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 826.5                 | 836.5                    | 846.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 23.95                 | 23.95                    | 23.97                  | 24                  | 0        |
| 5               | QPSK       | 1       | 12        | 23.94                 | 23.95                    | 23.93                  |                     |          |
| 5               | QPSK       | 1       | 24        | 23.96                 | 23.94                    | 23.84                  |                     |          |
| 5               | QPSK       | 12      | 0         | 22.85                 | 22.74                    | 22.68                  | 23                  | 1        |
| 5               | QPSK       | 12      | 7         | 22.81                 | 22.75                    | 22.66                  |                     |          |
| 5               | QPSK       | 12      | 13        | 22.77                 | 22.73                    | 22.67                  |                     |          |
| 5               | QPSK       | 25      | 0         | 22.80                 | 22.77                    | 22.67                  |                     |          |
| 5               | 16QAM      | 1       | 0         | 22.93                 | 22.94                    | 22.98                  | 23                  | 1        |
| 5               | 16QAM      | 1       | 12        | 22.93                 | 22.91                    | 22.92                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 22.91                 | 22.96                    | 22.85                  |                     |          |
| 5               | 16QAM      | 12      | 0         | 21.85                 | 21.79                    | 21.72                  | 22                  | 2        |
| 5               | 16QAM      | 12      | 7         | 21.83                 | 21.82                    | 21.68                  |                     |          |
| 5               | 16QAM      | 12      | 13        | 21.76                 | 21.73                    | 21.67                  |                     |          |
| 5               | 16QAM      | 25      | 0         | 21.78                 | 21.79                    | 21.69                  |                     |          |
| 5               | 64QAM      | 1       | 0         | 21.96                 | 21.93                    | 21.87                  | 22                  | 2        |
| 5               | 64QAM      | 1       | 12        | 21.92                 | 21.86                    | 21.79                  |                     |          |
| 5               | 64QAM      | 1       | 24        | 21.96                 | 21.87                    | 21.75                  |                     |          |
| 5               | 64QAM      | 12      | 0         | 20.92                 | 20.85                    | 20.78                  | 21                  | 3        |
| 5               | 64QAM      | 12      | 7         | 20.86                 | 20.85                    | 20.76                  |                     |          |
| 5               | 64QAM      | 12      | 13        | 20.81                 | 20.78                    | 20.69                  |                     |          |
| 5               | 64QAM      | 25      | 0         | 20.81                 | 20.80                    | 20.68                  |                     |          |



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|                 |        |    |    |       |       |       |                     |          |
|-----------------|--------|----|----|-------|-------|-------|---------------------|----------|
| 5               | 256QAM | 1  | 0  | 18.91 | 18.98 | 19.01 | 19.5                | 4.5      |
| 5               | 256QAM | 1  | 12 | 19.05 | 19.18 | 18.96 |                     |          |
| 5               | 256QAM | 1  | 24 | 19.11 | 19.16 | 18.99 |                     |          |
| 5               | 256QAM | 12 | 0  | 18.96 | 18.96 | 19.01 | 19.5                | 4.5      |
| 5               | 256QAM | 12 | 7  | 18.89 | 19.01 | 19.08 |                     |          |
| 5               | 256QAM | 12 | 13 | 18.93 | 18.96 | 18.99 |                     |          |
| 5               | 256QAM | 25 | 0  | 18.96 | 18.96 | 19.00 | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 20415 | 20525 | 20635 |                     |          |
| Frequency (MHz) |        |    |    | 825.5 | 836.5 | 847.5 |                     |          |
| 3               | QPSK   | 1  | 0  | 23.94 | 23.96 | 23.87 | 24                  | 0        |
| 3               | QPSK   | 1  | 8  | 23.88 | 23.84 | 23.73 |                     |          |
| 3               | QPSK   | 1  | 14 | 23.85 | 23.86 | 23.75 |                     |          |
| 3               | QPSK   | 8  | 0  | 22.56 | 22.60 | 22.56 | 23                  | 1        |
| 3               | QPSK   | 8  | 4  | 22.65 | 22.65 | 22.52 |                     |          |
| 3               | QPSK   | 8  | 7  | 22.60 | 22.55 | 22.52 |                     |          |
| 3               | QPSK   | 15 | 0  | 22.62 | 22.61 | 22.56 | 23                  | 1        |
| 3               | 16QAM  | 1  | 0  | 22.91 | 22.84 | 22.86 |                     |          |
| 3               | 16QAM  | 1  | 8  | 22.80 | 22.80 | 22.78 |                     |          |
| 3               | 16QAM  | 1  | 14 | 22.84 | 22.85 | 22.70 | 22                  | 2        |
| 3               | 16QAM  | 8  | 0  | 21.50 | 21.50 | 21.63 |                     |          |
| 3               | 16QAM  | 8  | 4  | 21.67 | 21.71 | 21.52 |                     |          |
| 3               | 16QAM  | 8  | 7  | 21.57 | 21.61 | 21.48 | 22                  | 2        |
| 3               | 16QAM  | 15 | 0  | 21.64 | 21.60 | 21.49 |                     |          |
| 3               | 64QAM  | 1  | 0  | 21.74 | 21.76 | 21.69 |                     |          |
| 3               | 64QAM  | 1  | 8  | 21.69 | 21.75 | 21.72 | 21                  | 3        |
| 3               | 64QAM  | 1  | 14 | 21.70 | 21.68 | 21.50 |                     |          |
| 3               | 64QAM  | 8  | 0  | 20.56 | 20.53 | 20.59 |                     |          |
| 3               | 64QAM  | 8  | 4  | 20.67 | 20.71 | 20.59 | 19.5                | 4.5      |
| 3               | 64QAM  | 8  | 7  | 20.58 | 20.64 | 20.61 |                     |          |
| 3               | 64QAM  | 15 | 0  | 20.62 | 20.65 | 20.57 |                     |          |
| 3               | 256QAM | 1  | 0  | 18.95 | 18.97 | 19.04 | 19.5                | 4.5      |
| 3               | 256QAM | 1  | 8  | 19.07 | 19.11 | 18.99 |                     |          |
| 3               | 256QAM | 1  | 14 | 19.07 | 19.16 | 19.06 |                     |          |
| 3               | 256QAM | 8  | 0  | 18.99 | 18.95 | 19.03 | 19.5                | 4.5      |
| 3               | 256QAM | 8  | 4  | 18.91 | 18.96 | 19.05 |                     |          |
| 3               | 256QAM | 8  | 7  | 18.95 | 18.98 | 18.93 |                     |          |
| 3               | 256QAM | 15 | 0  | 18.98 | 19.04 | 18.98 | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 20407 | 20525 | 20643 |                     |          |
| Frequency (MHz) |        |    |    | 824.7 | 836.5 | 848.3 |                     |          |
| 1.4             | QPSK   | 1  | 0  | 23.93 | 23.85 | 23.76 | 24                  | 0        |
| 1.4             | QPSK   | 1  | 3  | 23.95 | 23.94 | 23.82 |                     |          |
| 1.4             | QPSK   | 1  | 5  | 23.85 | 23.83 | 23.75 |                     |          |
| 1.4             | QPSK   | 3  | 0  | 23.96 | 23.87 | 23.84 | 23                  | 1        |
| 1.4             | QPSK   | 3  | 1  | 23.95 | 23.95 | 23.84 |                     |          |
| 1.4             | QPSK   | 3  | 3  | 23.88 | 23.90 | 23.78 |                     |          |
| 1.4             | QPSK   | 6  | 0  | 22.99 | 22.95 | 22.90 | 23                  | 1        |
| 1.4             | 16QAM  | 1  | 0  | 22.95 | 22.87 | 22.83 |                     |          |
| 1.4             | 16QAM  | 1  | 3  | 23.00 | 22.97 | 22.85 |                     |          |
| 1.4             | 16QAM  | 1  | 5  | 22.90 | 22.86 | 22.76 | 22                  | 2        |
| 1.4             | 16QAM  | 3  | 0  | 22.73 | 22.63 | 22.60 |                     |          |
| 1.4             | 16QAM  | 3  | 1  | 22.77 | 22.73 | 22.63 |                     |          |
| 1.4             | 16QAM  | 3  | 3  | 22.71 | 22.65 | 22.58 | 22                  | 2        |
| 1.4             | 16QAM  | 6  | 0  | 21.76 | 21.73 | 21.66 |                     |          |
| 1.4             | 64QAM  | 1  | 0  | 21.91 | 21.79 | 21.73 |                     |          |
| 1.4             | 64QAM  | 1  | 3  | 21.92 | 21.86 | 21.79 | 22                  | 2        |
| 1.4             | 64QAM  | 1  | 5  | 21.85 | 21.80 | 21.68 |                     |          |



# FCC SAR TEST REPORT

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|     |        |   |   |       |       |       |      |     |
|-----|--------|---|---|-------|-------|-------|------|-----|
| 1.4 | 64QAM  | 3 | 0 | 21.84 | 21.75 | 21.72 |      |     |
| 1.4 | 64QAM  | 3 | 1 | 21.88 | 21.85 | 21.77 |      |     |
| 1.4 | 64QAM  | 3 | 3 | 21.82 | 21.79 | 21.69 |      |     |
| 1.4 | 64QAM  | 6 | 0 | 20.72 | 20.71 | 20.61 | 21   | 3   |
| 1.4 | 256QAM | 1 | 0 | 19.01 | 18.95 | 18.98 | 19.5 | 4.5 |
| 1.4 | 256QAM | 1 | 3 | 19.11 | 19.16 | 19.01 |      |     |
| 1.4 | 256QAM | 1 | 5 | 19.12 | 19.14 | 19.06 |      |     |
| 1.4 | 256QAM | 3 | 0 | 18.90 | 18.94 | 19.04 |      |     |
| 1.4 | 256QAM | 3 | 1 | 18.90 | 18.98 | 19.04 |      |     |
| 1.4 | 256QAM | 3 | 3 | 18.85 | 18.93 | 18.94 | 19.5 | 4.5 |
| 1.4 | 256QAM | 6 | 0 | 19.00 | 19.02 | 18.99 |      |     |



**<LTE Band 7>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 20850                    | 21100                       | 21350                     |                        |             |
| Frequency (MHz) |            |         |           | 2510                     | 2535                        | 2560                      |                        |             |
| 20              | QPSK       | 1       | 0         | 17.87                    | 17.84                       | 17.84                     | 18.9                   | 0           |
| 20              | QPSK       | 1       | 49        | 17.90                    | 17.91                       | 17.83                     |                        |             |
| 20              | QPSK       | 1       | 99        | 18.30                    | 18.29                       | 18.28                     |                        |             |
| 20              | QPSK       | 50      | 0         | 18.00                    | 18.00                       | 18.01                     | 18.9                   | 0           |
| 20              | QPSK       | 50      | 24        | 18.11                    | 18.08                       | 18.02                     |                        |             |
| 20              | QPSK       | 50      | 50        | 18.43                    | 18.23                       | 18.21                     |                        |             |
| 20              | QPSK       | 100     | 0         | 18.36                    | 18.21                       | 18.19                     |                        |             |
| 20              | 16QAM      | 1       | 0         | 18.23                    | 18.23                       | 18.19                     | 18.9                   | 0           |
| 20              | 16QAM      | 1       | 49        | 18.28                    | 18.33                       | 18.23                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 18.40                    | 18.29                       | 18.23                     |                        |             |
| 20              | 16QAM      | 50      | 0         | 17.99                    | 18.07                       | 18.04                     | 18.9                   | 0           |
| 20              | 16QAM      | 50      | 24        | 18.15                    | 18.08                       | 18.05                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 18.17                    | 18.09                       | 17.96                     |                        |             |
| 20              | 16QAM      | 100     | 0         | 18.08                    | 18.04                       | 17.94                     |                        |             |
| 20              | 64QAM      | 1       | 0         | 18.07                    | 18.12                       | 18.04                     | 18.9                   | 0           |
| 20              | 64QAM      | 1       | 49        | 18.18                    | 18.25                       | 18.02                     |                        |             |
| 20              | 64QAM      | 1       | 99        | 18.25                    | 18.22                       | 18.05                     |                        |             |
| 20              | 64QAM      | 50      | 0         | 17.92                    | 18.16                       | 17.95                     | 18.9                   | 0           |
| 20              | 64QAM      | 50      | 24        | 18.07                    | 18.19                       | 17.98                     |                        |             |
| 20              | 64QAM      | 50      | 50        | 18.08                    | 18.20                       | 17.95                     |                        |             |
| 20              | 64QAM      | 100     | 0         | 18.03                    | 18.14                       | 17.99                     |                        |             |
| 20              | 256QAM     | 1       | 0         | 18.05                    | 18.05                       | 18.05                     | 18.9                   | 0           |
| 20              | 256QAM     | 1       | 49        | 18.10                    | 18.02                       | 17.84                     |                        |             |
| 20              | 256QAM     | 1       | 99        | 17.98                    | 17.99                       | 17.86                     |                        |             |
| 20              | 256QAM     | 50      | 0         | 18.03                    | 17.96                       | 17.94                     | 18.9                   | 0           |
| 20              | 256QAM     | 50      | 24        | 18.10                    | 17.81                       | 17.65                     |                        |             |
| 20              | 256QAM     | 50      | 50        | 18.06                    | 17.92                       | 17.81                     |                        |             |
| 20              | 256QAM     | 100     | 0         | 18.07                    | 18.03                       | 17.87                     |                        |             |
| Channel         |            |         |           | 20825                    | 21100                       | 21375                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 2507.5                   | 2535                        | 2562.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 17.77                    | 17.83                       | 17.74                     | 18.9                   | 0           |
| 15              | QPSK       | 1       | 37        | 17.90                    | 17.89                       | 17.77                     |                        |             |
| 15              | QPSK       | 1       | 74        | 17.98                    | 17.88                       | 17.82                     |                        |             |
| 15              | QPSK       | 36      | 0         | 17.92                    | 17.99                       | 17.97                     | 18.9                   | 0           |
| 15              | QPSK       | 36      | 20        | 18.02                    | 18.06                       | 17.98                     |                        |             |
| 15              | QPSK       | 36      | 39        | 18.15                    | 18.07                       | 17.97                     |                        |             |
| 15              | QPSK       | 75      | 0         | 18.08                    | 17.97                       | 17.93                     |                        |             |
| 15              | 16QAM      | 1       | 0         | 18.14                    | 18.20                       | 18.10                     | 18.9                   | 0           |
| 15              | 16QAM      | 1       | 37        | 18.18                    | 18.29                       | 18.13                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 18.31                    | 18.24                       | 18.17                     |                        |             |
| 15              | 16QAM      | 36      | 0         | 17.93                    | 17.99                       | 17.98                     | 18.9                   | 0           |
| 15              | 16QAM      | 36      | 20        | 18.07                    | 18.02                       | 17.96                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 18.10                    | 18.08                       | 17.95                     |                        |             |
| 15              | 16QAM      | 75      | 0         | 18.04                    | 18.02                       | 17.84                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 18.07                    | 18.08                       | 17.95                     | 18.9                   | 0           |
| 15              | 64QAM      | 1       | 37        | 18.12                    | 18.25                       | 17.95                     |                        |             |
| 15              | 64QAM      | 1       | 74        | 18.23                    | 18.18                       | 18.01                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 17.92                    | 18.06                       | 17.87                     | 18.9                   | 0           |
| 15              | 64QAM      | 36      | 20        | 17.98                    | 18.12                       | 17.98                     |                        |             |
| 15              | 64QAM      | 36      | 39        | 17.99                    | 18.10                       | 17.88                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 17.99                    | 18.04                       | 17.91                     |                        |             |



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|                 |        |    |    |        |       |        |                        |             |
|-----------------|--------|----|----|--------|-------|--------|------------------------|-------------|
| 15              | 256QAM | 1  | 0  | 18.01  | 18.05 | 18.05  | 18.9                   | 0           |
| 15              | 256QAM | 1  | 37 | 18.09  | 17.97 | 17.78  |                        |             |
| 15              | 256QAM | 1  | 74 | 17.93  | 17.94 | 17.84  |                        |             |
| 15              | 256QAM | 36 | 0  | 17.94  | 17.88 | 17.94  | 18.9                   | 0           |
| 15              | 256QAM | 36 | 20 | 18.04  | 17.72 | 17.65  |                        |             |
| 15              | 256QAM | 36 | 39 | 18.03  | 17.83 | 17.75  |                        |             |
| 15              | 256QAM | 75 | 0  | 17.98  | 17.99 | 17.84  |                        |             |
| Channel         |        |    |    | 20800  | 21100 | 21400  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |        |    |    | 2505   | 2535  | 2565   |                        |             |
| 10              | QPSK   | 1  | 0  | 17.79  | 17.84 | 17.78  | 18.9                   | 0           |
| 10              | QPSK   | 1  | 25 | 17.90  | 17.90 | 17.75  |                        |             |
| 10              | QPSK   | 1  | 49 | 17.93  | 17.86 | 17.83  |                        |             |
| 10              | QPSK   | 25 | 0  | 17.94  | 17.96 | 17.98  | 18.9                   | 0           |
| 10              | QPSK   | 25 | 12 | 18.11  | 17.99 | 17.94  |                        |             |
| 10              | QPSK   | 25 | 25 | 18.06  | 18.07 | 18.00  |                        |             |
| 10              | QPSK   | 50 | 0  | 18.07  | 17.99 | 17.98  |                        |             |
| 10              | 16QAM  | 1  | 0  | 18.14  | 18.13 | 18.14  | 18.9                   | 0           |
| 10              | 16QAM  | 1  | 25 | 18.19  | 18.28 | 18.18  |                        |             |
| 10              | 16QAM  | 1  | 49 | 18.30  | 18.21 | 18.15  |                        |             |
| 10              | 16QAM  | 25 | 0  | 17.93  | 18.01 | 18.02  | 18.9                   | 0           |
| 10              | 16QAM  | 25 | 12 | 18.13  | 18.00 | 18.05  |                        |             |
| 10              | 16QAM  | 25 | 25 | 18.17  | 18.02 | 17.94  |                        |             |
| 10              | 16QAM  | 50 | 0  | 18.07  | 18.01 | 17.93  |                        |             |
| 10              | 64QAM  | 1  | 0  | 18.04  | 18.11 | 17.97  | 18.9                   | 0           |
| 10              | 64QAM  | 1  | 25 | 18.11  | 18.24 | 17.99  |                        |             |
| 10              | 64QAM  | 1  | 49 | 18.23  | 18.17 | 18.03  |                        |             |
| 10              | 64QAM  | 25 | 0  | 17.92  | 18.16 | 17.95  | 18.9                   | 0           |
| 10              | 64QAM  | 25 | 12 | 18.01  | 18.19 | 17.93  |                        |             |
| 10              | 64QAM  | 25 | 25 | 18.03  | 18.11 | 17.91  |                        |             |
| 10              | 64QAM  | 50 | 0  | 17.96  | 18.08 | 17.95  |                        |             |
| 10              | 256QAM | 1  | 0  | 18.01  | 18.05 | 17.95  | 18.9                   | 0           |
| 10              | 256QAM | 1  | 25 | 18.00  | 18.01 | 17.74  |                        |             |
| 10              | 256QAM | 1  | 49 | 17.97  | 17.96 | 17.84  |                        |             |
| 10              | 256QAM | 25 | 0  | 17.94  | 17.86 | 17.92  | 18.9                   | 0           |
| 10              | 256QAM | 25 | 12 | 18.00  | 17.75 | 17.56  |                        |             |
| 10              | 256QAM | 25 | 25 | 18.04  | 17.92 | 17.72  |                        |             |
| 10              | 256QAM | 50 | 0  | 17.99  | 17.95 | 17.85  |                        |             |
| Channel         |        |    |    | 20775  | 21100 | 21425  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |        |    |    | 2502.5 | 2535  | 2567.5 |                        |             |
| 5               | QPSK   | 1  | 0  | 17.80  | 17.75 | 17.76  | 18.9                   | 0           |
| 5               | QPSK   | 1  | 12 | 17.82  | 17.91 | 17.78  |                        |             |
| 5               | QPSK   | 1  | 24 | 17.98  | 17.90 | 17.73  |                        |             |
| 5               | QPSK   | 12 | 0  | 17.94  | 17.90 | 17.96  | 18.9                   | 0           |
| 5               | QPSK   | 12 | 7  | 18.07  | 18.05 | 18.02  |                        |             |
| 5               | QPSK   | 12 | 13 | 18.12  | 18.06 | 17.97  |                        |             |
| 5               | QPSK   | 25 | 0  | 18.07  | 18.00 | 17.99  |                        |             |
| 5               | 16QAM  | 1  | 0  | 18.17  | 18.19 | 18.17  | 18.9                   | 0           |
| 5               | 16QAM  | 1  | 12 | 18.20  | 18.29 | 18.18  |                        |             |
| 5               | 16QAM  | 1  | 24 | 18.32  | 18.19 | 18.19  |                        |             |
| 5               | 16QAM  | 12 | 0  | 17.98  | 18.00 | 17.97  | 18.9                   | 0           |
| 5               | 16QAM  | 12 | 7  | 18.12  | 18.05 | 18.02  |                        |             |
| 5               | 16QAM  | 12 | 13 | 18.13  | 18.05 | 17.90  |                        |             |
| 5               | 16QAM  | 25 | 0  | 18.03  | 17.94 | 17.85  |                        |             |
| 5               | 64QAM  | 1  | 0  | 18.03  | 18.10 | 17.94  | 18.9                   | 0           |
| 5               | 64QAM  | 1  | 12 | 18.12  | 18.23 | 17.93  |                        |             |
| 5               | 64QAM  | 1  | 24 | 18.23  | 18.17 | 17.95  |                        |             |



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|   |        |    |    |       |       |       |      |   |
|---|--------|----|----|-------|-------|-------|------|---|
| 5 | 64QAM  | 12 | 0  | 17.86 | 18.16 | 17.88 | 18.9 | 0 |
| 5 | 64QAM  | 12 | 7  | 18.00 | 18.13 | 17.89 |      |   |
| 5 | 64QAM  | 12 | 13 | 18.03 | 18.19 | 17.93 |      |   |
| 5 | 64QAM  | 25 | 0  | 17.99 | 18.06 | 17.96 |      |   |
| 5 | 256QAM | 1  | 0  | 17.98 | 17.99 | 18.04 | 18.9 | 0 |
| 5 | 256QAM | 1  | 12 | 18.05 | 17.93 | 17.82 |      |   |
| 5 | 256QAM | 1  | 24 | 17.91 | 17.92 | 17.85 |      |   |
| 5 | 256QAM | 12 | 0  | 18.03 | 17.86 | 17.87 | 18.9 | 0 |
| 5 | 256QAM | 12 | 7  | 18.09 | 17.81 | 17.64 |      |   |
| 5 | 256QAM | 12 | 13 | 18.00 | 17.91 | 17.80 |      |   |
| 5 | 256QAM | 25 | 0  | 18.07 | 17.93 | 17.78 |      |   |



**<LTE Band 12>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 23060                    | 23095                       | 23130                     |                        |             |
| Frequency (MHz) |            |         |           | 704                      | 707.5                       | 711                       |                        |             |
| 10              | QPSK       | 1       | 0         | 23.74                    | 23.72                       | 23.78                     | 24                     | 0           |
| 10              | QPSK       | 1       | 25        | 23.63                    | 23.69                       | 23.73                     |                        |             |
| 10              | QPSK       | 1       | 49        | 23.67                    | 23.72                       | 23.75                     |                        |             |
| 10              | QPSK       | 25      | 0         | 22.74                    | 22.83                       | 22.88                     | 23                     | 1           |
| 10              | QPSK       | 25      | 12        | 22.84                    | 22.83                       | 22.89                     |                        |             |
| 10              | QPSK       | 25      | 25        | 22.80                    | 22.92                       | 22.98                     |                        |             |
| 10              | QPSK       | 50      | 0         | 22.85                    | 22.93                       | 22.91                     | 23                     | 1           |
| 10              | 16QAM      | 1       | 0         | 22.72                    | 22.72                       | 22.77                     |                        |             |
| 10              | 16QAM      | 1       | 25        | 22.73                    | 22.78                       | 22.83                     |                        |             |
| 10              | 16QAM      | 1       | 49        | 22.88                    | 22.88                       | 22.93                     | 22                     | 2           |
| 10              | 16QAM      | 25      | 0         | 21.78                    | 21.84                       | 21.90                     |                        |             |
| 10              | 16QAM      | 25      | 12        | 21.84                    | 21.86                       | 21.90                     |                        |             |
| 10              | 16QAM      | 25      | 25        | 21.78                    | 21.92                       | 21.89                     | 22                     | 2           |
| 10              | 16QAM      | 50      | 0         | 21.85                    | 21.93                       | 21.89                     |                        |             |
| 10              | 64QAM      | 1       | 0         | 21.88                    | 21.88                       | 21.92                     |                        |             |
| 10              | 64QAM      | 1       | 25        | 21.95                    | 22.00                       | 21.95                     | 22                     | 2           |
| 10              | 64QAM      | 1       | 49        | 21.96                    | 21.92                       | 21.92                     |                        |             |
| 10              | 64QAM      | 25      | 0         | 20.79                    | 20.87                       | 20.90                     |                        |             |
| 10              | 64QAM      | 25      | 12        | 20.88                    | 20.90                       | 20.91                     | 21                     | 3           |
| 10              | 64QAM      | 25      | 25        | 20.87                    | 20.95                       | 20.98                     |                        |             |
| 10              | 64QAM      | 50      | 0         | 20.85                    | 20.98                       | 20.92                     |                        |             |
| 10              | 256QAM     | 1       | 0         | 18.83                    | 18.84                       | 18.89                     | 19                     | 5           |
| 10              | 256QAM     | 1       | 25        | 19.00                    | 19.00                       | 19.00                     |                        |             |
| 10              | 256QAM     | 1       | 49        | 19.00                    | 19.00                       | 18.93                     |                        |             |
| 10              | 256QAM     | 25      | 0         | 18.77                    | 18.78                       | 18.82                     | 19                     | 5           |
| 10              | 256QAM     | 25      | 12        | 18.91                    | 18.80                       | 18.91                     |                        |             |
| 10              | 256QAM     | 25      | 25        | 18.81                    | 18.85                       | 18.92                     |                        |             |
| 10              | 256QAM     | 50      | 0         | 18.88                    | 18.90                       | 18.96                     |                        |             |
| Channel         |            |         |           | 23035                    | 23095                       | 23155                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 701.5                    | 707.5                       | 713.5                     |                        |             |
| 5               | QPSK       | 1       | 0         | 23.75                    | 23.75                       | 23.76                     | 24                     | 0           |
| 5               | QPSK       | 1       | 12        | 23.72                    | 23.77                       | 23.74                     |                        |             |
| 5               | QPSK       | 1       | 24        | 23.74                    | 23.73                       | 23.74                     |                        |             |
| 5               | QPSK       | 12      | 0         | 22.81                    | 22.89                       | 22.96                     | 23                     | 1           |
| 5               | QPSK       | 12      | 7         | 22.82                    | 22.95                       | 22.92                     |                        |             |
| 5               | QPSK       | 12      | 13        | 22.81                    | 22.92                       | 22.94                     |                        |             |
| 5               | QPSK       | 25      | 0         | 22.81                    | 22.92                       | 22.94                     | 23                     | 1           |
| 5               | 16QAM      | 1       | 0         | 22.90                    | 22.90                       | 22.91                     |                        |             |
| 5               | 16QAM      | 1       | 12        | 22.83                    | 22.93                       | 22.98                     |                        |             |
| 5               | 16QAM      | 1       | 24        | 22.88                    | 22.97                       | 22.96                     | 22                     | 2           |
| 5               | 16QAM      | 12      | 0         | 21.63                    | 21.71                       | 21.76                     |                        |             |
| 5               | 16QAM      | 12      | 7         | 21.68                    | 21.74                       | 21.81                     |                        |             |
| 5               | 16QAM      | 12      | 13        | 21.63                    | 21.73                       | 21.77                     | 22                     | 2           |
| 5               | 16QAM      | 25      | 0         | 21.61                    | 21.75                       | 21.72                     |                        |             |
| 5               | 64QAM      | 1       | 0         | 21.83                    | 21.83                       | 21.80                     |                        |             |
| 5               | 64QAM      | 1       | 12        | 21.71                    | 21.81                       | 21.88                     | 22                     | 2           |
| 5               | 64QAM      | 1       | 24        | 21.81                    | 21.90                       | 21.87                     |                        |             |
| 5               | 64QAM      | 12      | 0         | 20.64                    | 20.78                       | 20.83                     |                        |             |
| 5               | 64QAM      | 12      | 7         | 20.71                    | 20.81                       | 20.86                     | 21                     | 3           |
| 5               | 64QAM      | 12      | 13        | 20.66                    | 20.75                       | 20.81                     |                        |             |
| 5               | 64QAM      | 25      | 0         | 20.65                    | 20.76                       | 20.78                     |                        |             |



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|                 |        |    |    |       |       |       |                     |          |
|-----------------|--------|----|----|-------|-------|-------|---------------------|----------|
| 5               | 256QAM | 1  | 0  | 18.73 | 18.82 | 18.79 | 19                  | 5        |
| 5               | 256QAM | 1  | 12 | 19.00 | 18.92 | 18.98 |                     |          |
| 5               | 256QAM | 1  | 24 | 19.00 | 18.98 | 19.00 |                     |          |
| 5               | 256QAM | 12 | 0  | 18.70 | 18.78 | 18.79 | 19                  | 5        |
| 5               | 256QAM | 12 | 7  | 18.85 | 18.73 | 18.81 |                     |          |
| 5               | 256QAM | 12 | 13 | 18.78 | 18.81 | 18.90 |                     |          |
| 5               | 256QAM | 25 | 0  | 18.85 | 18.90 | 18.88 | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 23025 | 23095 | 23165 |                     |          |
| Frequency (MHz) |        |    |    | 700.5 | 707.5 | 714.5 |                     |          |
| 3               | QPSK   | 1  | 0  | 23.59 | 23.62 | 23.61 | 24                  | 0        |
| 3               | QPSK   | 1  | 8  | 23.63 | 23.62 | 23.66 |                     |          |
| 3               | QPSK   | 1  | 14 | 23.73 | 23.73 | 23.70 |                     |          |
| 3               | QPSK   | 8  | 0  | 22.70 | 22.77 | 22.86 | 23                  | 1        |
| 3               | QPSK   | 8  | 4  | 22.78 | 22.75 | 22.86 |                     |          |
| 3               | QPSK   | 8  | 7  | 22.72 | 22.90 | 22.88 |                     |          |
| 3               | QPSK   | 15 | 0  | 22.80 | 22.90 | 22.91 | 23                  | 1        |
| 3               | 16QAM  | 1  | 0  | 22.63 | 22.69 | 22.74 |                     |          |
| 3               | 16QAM  | 1  | 8  | 22.64 | 22.76 | 22.77 |                     |          |
| 3               | 16QAM  | 1  | 14 | 22.78 | 22.80 | 22.88 | 22                  | 2        |
| 3               | 16QAM  | 8  | 0  | 21.76 | 21.81 | 21.81 |                     |          |
| 3               | 16QAM  | 8  | 4  | 21.74 | 21.79 | 21.84 |                     |          |
| 3               | 16QAM  | 8  | 7  | 21.72 | 21.87 | 21.80 | 22                  | 2        |
| 3               | 16QAM  | 15 | 0  | 21.80 | 21.88 | 21.80 |                     |          |
| 3               | 64QAM  | 1  | 0  | 21.85 | 21.86 | 21.82 |                     |          |
| 3               | 64QAM  | 1  | 8  | 21.85 | 21.95 | 21.93 | 21                  | 3        |
| 3               | 64QAM  | 1  | 14 | 21.90 | 21.92 | 21.88 |                     |          |
| 3               | 64QAM  | 8  | 0  | 20.76 | 20.82 | 20.81 |                     |          |
| 3               | 64QAM  | 8  | 4  | 20.79 | 20.80 | 20.90 | 19                  | 5        |
| 3               | 64QAM  | 8  | 7  | 20.83 | 20.86 | 20.95 |                     |          |
| 3               | 64QAM  | 15 | 0  | 20.75 | 20.94 | 20.86 |                     |          |
| 3               | 256QAM | 1  | 0  | 18.73 | 18.80 | 18.85 | 19                  | 5        |
| 3               | 256QAM | 1  | 8  | 18.92 | 18.98 | 18.97 |                     |          |
| 3               | 256QAM | 1  | 14 | 18.94 | 18.97 | 18.97 |                     |          |
| 3               | 256QAM | 8  | 0  | 18.76 | 18.71 | 18.75 | 19                  | 5        |
| 3               | 256QAM | 8  | 4  | 18.91 | 18.77 | 18.83 |                     |          |
| 3               | 256QAM | 8  | 7  | 18.75 | 18.76 | 18.90 |                     |          |
| 3               | 256QAM | 15 | 0  | 18.88 | 18.90 | 18.86 | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 23017 | 23095 | 23173 |                     |          |
| Frequency (MHz) |        |    |    | 699.7 | 707.5 | 715.3 |                     |          |
| 1.4             | QPSK   | 1  | 0  | 23.59 | 23.60 | 23.77 | 24                  | 0        |
| 1.4             | QPSK   | 1  | 3  | 23.70 | 23.74 | 23.76 |                     |          |
| 1.4             | QPSK   | 1  | 5  | 23.59 | 23.65 | 23.61 |                     |          |
| 1.4             | QPSK   | 3  | 0  | 23.71 | 23.66 | 23.74 | 23                  | 1        |
| 1.4             | QPSK   | 3  | 1  | 23.54 | 23.69 | 23.45 |                     |          |
| 1.4             | QPSK   | 3  | 3  | 23.65 | 23.67 | 23.45 |                     |          |
| 1.4             | QPSK   | 6  | 0  | 22.72 | 22.81 | 22.65 | 23                  | 1        |
| 1.4             | 16QAM  | 1  | 0  | 22.96 | 22.95 | 22.80 | 23                  | 1        |
| 1.4             | 16QAM  | 1  | 3  | 23.00 | 23.00 | 23.00 |                     |          |
| 1.4             | 16QAM  | 1  | 5  | 22.96 | 23.00 | 22.87 |                     |          |
| 1.4             | 16QAM  | 3  | 0  | 22.77 | 22.75 | 22.68 | 22                  | 2        |
| 1.4             | 16QAM  | 3  | 1  | 22.79 | 22.78 | 22.83 |                     |          |
| 1.4             | 16QAM  | 3  | 3  | 22.73 | 22.78 | 22.75 |                     |          |
| 1.4             | 16QAM  | 6  | 0  | 21.78 | 21.86 | 21.91 | 22                  | 2        |
| 1.4             | 64QAM  | 1  | 0  | 21.93 | 21.89 | 21.93 |                     |          |
| 1.4             | 64QAM  | 1  | 3  | 21.94 | 22.00 | 22.00 |                     |          |
| 1.4             | 64QAM  | 1  | 5  | 21.91 | 21.91 | 21.70 | 22                  | 2        |



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|     |        |   |   |       |       |       |    |   |
|-----|--------|---|---|-------|-------|-------|----|---|
| 1.4 | 64QAM  | 3 | 0 | 21.87 | 21.83 | 21.87 |    |   |
| 1.4 | 64QAM  | 3 | 1 | 21.93 | 21.89 | 22.00 |    |   |
| 1.4 | 64QAM  | 3 | 3 | 21.82 | 21.89 | 21.98 |    |   |
| 1.4 | 64QAM  | 6 | 0 | 20.74 | 20.82 | 20.79 | 21 | 3 |
| 1.4 | 256QAM | 1 | 0 | 18.81 | 18.82 | 18.81 | 19 | 5 |
| 1.4 | 256QAM | 1 | 3 | 19.00 | 18.92 | 19.00 |    |   |
| 1.4 | 256QAM | 1 | 5 | 18.97 | 18.96 | 18.97 |    |   |
| 1.4 | 256QAM | 3 | 0 | 18.72 | 18.74 | 18.73 |    |   |
| 1.4 | 256QAM | 3 | 1 | 18.85 | 18.73 | 18.84 |    |   |
| 1.4 | 256QAM | 3 | 3 | 18.74 | 18.77 | 18.91 | 19 | 5 |
| 1.4 | 256QAM | 6 | 0 | 18.78 | 18.86 | 18.93 |    |   |



**<LTE Band 13>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power<br>Low<br>Ch. / Freq. | Power<br>Middle<br>Ch. / Freq. | Power<br>High<br>Ch. / Freq. | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|-----------------------------|--------------------------------|------------------------------|------------------------|-------------|
| Channel         |            |         |           | 23230                       |                                |                              |                        |             |
| Frequency (MHz) |            |         |           | 782                         |                                |                              |                        |             |
| 10              | QPSK       | 1       | 0         |                             | 23.65                          |                              | 24                     | 0           |
| 10              | QPSK       | 1       | 25        |                             | 23.51                          |                              |                        |             |
| 10              | QPSK       | 1       | 49        |                             | 23.52                          |                              |                        |             |
| 10              | QPSK       | 25      | 0         |                             | 22.60                          |                              | 23                     | 1           |
| 10              | QPSK       | 25      | 12        |                             | 22.66                          |                              |                        |             |
| 10              | QPSK       | 25      | 25        |                             | 22.71                          |                              |                        |             |
| 10              | QPSK       | 50      | 0         |                             | 22.75                          |                              | 23                     | 1           |
| 10              | 16QAM      | 1       | 0         |                             | 22.86                          |                              |                        |             |
| 10              | 16QAM      | 1       | 25        |                             | 22.87                          |                              |                        |             |
| 10              | 16QAM      | 1       | 49        |                             | 22.95                          |                              | 22                     | 2           |
| 10              | 16QAM      | 25      | 0         |                             | 21.59                          |                              |                        |             |
| 10              | 16QAM      | 25      | 12        |                             | 21.62                          |                              |                        |             |
| 10              | 16QAM      | 25      | 25        |                             | 21.67                          |                              | 22                     | 2           |
| 10              | 16QAM      | 50      | 0         |                             | 21.69                          |                              |                        |             |
| 10              | 64QAM      | 1       | 0         |                             | 21.70                          |                              |                        |             |
| 10              | 64QAM      | 1       | 25        |                             | 21.82                          |                              | 22                     | 2           |
| 10              | 64QAM      | 1       | 49        |                             | 21.88                          |                              |                        |             |
| 10              | 64QAM      | 25      | 0         |                             | 20.64                          |                              |                        |             |
| 10              | 64QAM      | 25      | 12        |                             | 20.67                          |                              | 21                     | 3           |
| 10              | 64QAM      | 25      | 25        |                             | 20.70                          |                              |                        |             |
| 10              | 64QAM      | 50      | 0         |                             | 20.73                          |                              |                        |             |
| 10              | 256QAM     | 1       | 0         |                             | 18.85                          |                              | 19                     | 5           |
| 10              | 256QAM     | 1       | 25        |                             | 18.76                          |                              |                        |             |
| 10              | 256QAM     | 1       | 49        |                             | 18.90                          |                              |                        |             |
| 10              | 256QAM     | 25      | 0         |                             | 18.83                          |                              | 19                     | 5           |
| 10              | 256QAM     | 25      | 12        |                             | 18.70                          |                              |                        |             |
| 10              | 256QAM     | 25      | 25        |                             | 18.75                          |                              |                        |             |
| 10              | 256QAM     | 50      | 0         |                             | 18.83                          |                              |                        |             |
| Channel         |            |         |           | 23205                       | 23230                          | 23255                        | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 779.5                       | 782                            | 784.5                        |                        |             |
| 5               | QPSK       | 1       | 0         | 23.50                       | 23.52                          | 23.52                        | 24                     | 0           |
| 5               | QPSK       | 1       | 12        | 23.54                       | 23.57                          | 23.59                        |                        |             |
| 5               | QPSK       | 1       | 24        | 23.61                       | 23.63                          | 23.63                        |                        |             |
| 5               | QPSK       | 12      | 0         | 22.64                       | 22.64                          | 22.63                        | 23                     | 1           |
| 5               | QPSK       | 12      | 7         | 22.70                       | 22.65                          | 22.74                        |                        |             |
| 5               | QPSK       | 12      | 13        | 22.69                       | 22.67                          | 22.72                        |                        |             |
| 5               | QPSK       | 25      | 0         | 22.69                       | 22.68                          | 22.63                        | 23                     | 1           |
| 5               | 16QAM      | 1       | 0         | 22.87                       | 22.80                          | 22.84                        |                        |             |
| 5               | 16QAM      | 1       | 12        | 22.88                       | 22.94                          | 22.95                        |                        |             |
| 5               | 16QAM      | 1       | 24        | 22.93                       | 22.97                          | 22.95                        | 22                     | 2           |
| 5               | 16QAM      | 12      | 0         | 21.70                       | 21.67                          | 21.72                        |                        |             |
| 5               | 16QAM      | 12      | 7         | 21.73                       | 21.70                          | 21.74                        |                        |             |
| 5               | 16QAM      | 12      | 13        | 21.69                       | 21.72                          | 21.76                        | 22                     | 2           |
| 5               | 16QAM      | 25      | 0         | 21.73                       | 21.70                          | 21.67                        |                        |             |
| 5               | 64QAM      | 1       | 0         | 21.81                       | 21.81                          | 21.82                        |                        |             |
| 5               | 64QAM      | 1       | 12        | 21.88                       | 21.87                          | 21.92                        | 22                     | 2           |
| 5               | 64QAM      | 1       | 24        | 21.86                       | 21.97                          | 21.94                        |                        |             |
| 5               | 64QAM      | 12      | 0         | 20.72                       | 20.67                          | 20.70                        |                        |             |
| 5               | 64QAM      | 12      | 7         | 20.73                       | 20.74                          | 20.75                        | 21                     | 3           |
| 5               | 64QAM      | 12      | 13        | 20.71                       | 20.74                          | 20.76                        |                        |             |
| 5               | 64QAM      | 25      | 0         | 20.72                       | 20.73                          | 20.66                        |                        |             |



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|   |        |    |    |       |       |       |    |   |
|---|--------|----|----|-------|-------|-------|----|---|
| 5 | 256QAM | 1  | 0  | 18.75 | 18.76 | 18.84 | 19 | 5 |
| 5 | 256QAM | 1  | 12 | 18.76 | 18.71 | 18.69 |    |   |
| 5 | 256QAM | 1  | 24 | 18.85 | 18.85 | 18.84 |    |   |
| 5 | 256QAM | 12 | 0  | 18.78 | 18.80 | 18.73 | 19 | 5 |
| 5 | 256QAM | 12 | 7  | 18.63 | 18.65 | 18.65 |    |   |
| 5 | 256QAM | 12 | 13 | 18.72 | 18.73 | 18.65 |    |   |
| 5 | 256QAM | 25 | 0  | 18.75 | 18.79 | 18.75 |    |   |



**<LTE Band 14>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 23330                    |                             |                           |                        |             |
| Frequency (MHz) |            |         |           | 793                      |                             |                           |                        |             |
| 10              | QPSK       | 1       | 0         |                          | 23.67                       |                           | 24                     | 0           |
| 10              | QPSK       | 1       | 25        |                          | 23.59                       |                           |                        |             |
| 10              | QPSK       | 1       | 49        |                          | 23.60                       |                           |                        |             |
| 10              | QPSK       | 25      | 0         |                          | 22.63                       |                           | 23                     | 1           |
| 10              | QPSK       | 25      | 12        |                          | 22.64                       |                           |                        |             |
| 10              | QPSK       | 25      | 25        |                          | 22.71                       |                           |                        |             |
| 10              | QPSK       | 50      | 0         |                          | 22.63                       |                           | 23                     | 1           |
| 10              | 16QAM      | 1       | 0         |                          | 22.94                       |                           |                        |             |
| 10              | 16QAM      | 1       | 25        |                          | 22.95                       |                           |                        |             |
| 10              | 16QAM      | 1       | 49        |                          | 22.95                       |                           | 22                     | 2           |
| 10              | 16QAM      | 25      | 0         |                          | 21.65                       |                           |                        |             |
| 10              | 16QAM      | 25      | 12        |                          | 21.66                       |                           |                        |             |
| 10              | 16QAM      | 25      | 25        |                          | 21.71                       |                           | 22                     | 2           |
| 10              | 16QAM      | 50      | 0         |                          | 21.66                       |                           |                        |             |
| 10              | 64QAM      | 1       | 0         |                          | 21.90                       |                           |                        |             |
| 10              | 64QAM      | 1       | 25        |                          | 21.95                       |                           | 22                     | 2           |
| 10              | 64QAM      | 1       | 49        |                          | 21.83                       |                           |                        |             |
| 10              | 64QAM      | 25      | 0         |                          | 20.67                       |                           |                        |             |
| 10              | 64QAM      | 25      | 12        |                          | 20.69                       |                           | 21                     | 3           |
| 10              | 64QAM      | 25      | 25        |                          | 20.71                       |                           |                        |             |
| 10              | 64QAM      | 50      | 0         |                          | 20.66                       |                           |                        |             |
| 10              | 256QAM     | 1       | 0         |                          | 18.53                       |                           | 19                     | 5           |
| 10              | 256QAM     | 1       | 25        |                          | 18.55                       |                           |                        |             |
| 10              | 256QAM     | 1       | 49        |                          | 18.60                       |                           |                        |             |
| 10              | 256QAM     | 25      | 0         |                          | 18.52                       |                           | 19                     | 5           |
| 10              | 256QAM     | 25      | 12        |                          | 18.51                       |                           |                        |             |
| 10              | 256QAM     | 25      | 25        |                          | 18.54                       |                           |                        |             |
| 10              | 256QAM     | 50      | 0         |                          | 18.51                       |                           |                        |             |
| Channel         |            |         |           | 23305                    | 23330                       | 23355                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 790.5                    | 793                         | 795.5                     |                        |             |
| 5               | QPSK       | 1       | 0         | 23.62                    | 23.58                       | 23.57                     | 24                     | 0           |
| 5               | QPSK       | 1       | 12        | 23.66                    | 23.66                       | 23.66                     |                        |             |
| 5               | QPSK       | 1       | 24        | 23.61                    | 23.63                       | 23.58                     |                        |             |
| 5               | QPSK       | 12      | 0         | 22.74                    | 22.66                       | 22.61                     | 23                     | 1           |
| 5               | QPSK       | 12      | 7         | 22.76                    | 22.73                       | 22.74                     |                        |             |
| 5               | QPSK       | 12      | 13        | 22.66                    | 22.68                       | 22.65                     |                        |             |
| 5               | QPSK       | 25      | 0         | 22.70                    | 22.65                       | 22.60                     | 23                     | 1           |
| 5               | 16QAM      | 1       | 0         | 22.93                    | 22.92                       | 22.92                     |                        |             |
| 5               | 16QAM      | 1       | 12        | 23.00                    | 22.99                       | 23.00                     |                        |             |
| 5               | 16QAM      | 1       | 24        | 22.97                    | 22.99                       | 22.92                     | 22                     | 2           |
| 5               | 16QAM      | 12      | 0         | 21.73                    | 21.67                       | 21.63                     |                        |             |
| 5               | 16QAM      | 12      | 7         | 21.76                    | 21.77                       | 21.74                     |                        |             |
| 5               | 16QAM      | 12      | 13        | 21.72                    | 21.72                       | 21.68                     | 22                     | 2           |
| 5               | 16QAM      | 25      | 0         | 21.70                    | 21.62                       | 21.62                     |                        |             |
| 5               | 64QAM      | 1       | 0         | 21.87                    | 21.89                       | 21.84                     |                        |             |
| 5               | 64QAM      | 1       | 12        | 21.91                    | 21.92                       | 21.90                     | 22                     | 2           |
| 5               | 64QAM      | 1       | 24        | 21.90                    | 21.89                       | 21.91                     |                        |             |
| 5               | 64QAM      | 12      | 0         | 20.78                    | 20.71                       | 20.69                     |                        |             |
| 5               | 64QAM      | 12      | 7         | 20.82                    | 20.78                       | 20.78                     | 21                     | 3           |
| 5               | 64QAM      | 12      | 13        | 20.74                    | 20.72                       | 20.72                     |                        |             |
| 5               | 64QAM      | 25      | 0         | 20.72                    | 20.67                       | 20.62                     |                        |             |



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|   |        |    |    |       |       |       |    |   |
|---|--------|----|----|-------|-------|-------|----|---|
| 5 | 256QAM | 1  | 0  | 18.45 | 18.52 | 18.44 | 19 | 5 |
| 5 | 256QAM | 1  | 12 | 18.48 | 18.46 | 18.54 |    |   |
| 5 | 256QAM | 1  | 24 | 18.51 | 18.52 | 18.51 |    |   |
| 5 | 256QAM | 12 | 0  | 18.45 | 18.48 | 18.47 | 19 | 5 |
| 5 | 256QAM | 12 | 7  | 18.50 | 18.41 | 18.44 |    |   |
| 5 | 256QAM | 12 | 13 | 18.48 | 18.49 | 18.46 |    |   |
| 5 | 256QAM | 25 | 0  | 18.43 | 18.48 | 18.48 |    |   |



**<LTE Band 17>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 23780                    | 23790                       | 23800                     |                        |             |
| Frequency (MHz) |            |         |           | 709                      | 710                         | 711                       |                        |             |
| 10              | QPSK       | 1       | 0         | 23.64                    | 23.70                       | 23.62                     | 24                     | 0           |
| 10              | QPSK       | 1       | 25        | 23.64                    | 23.67                       | 23.65                     |                        |             |
| 10              | QPSK       | 1       | 49        | 23.67                    | 23.68                       | 23.57                     |                        |             |
| 10              | QPSK       | 25      | 0         | 22.63                    | 22.61                       | 22.65                     | 23                     | 1           |
| 10              | QPSK       | 25      | 12        | 22.83                    | 22.76                       | 22.73                     |                        |             |
| 10              | QPSK       | 25      | 25        | 22.85                    | 22.85                       | 22.84                     |                        |             |
| 10              | QPSK       | 50      | 0         | 22.72                    | 22.72                       | 22.71                     | 23                     | 1           |
| 10              | 16QAM      | 1       | 0         | 22.92                    | 22.87                       | 22.91                     |                        |             |
| 10              | 16QAM      | 1       | 25        | 22.96                    | 22.96                       | 22.98                     |                        |             |
| 10              | 16QAM      | 1       | 49        | 22.91                    | 22.94                       | 22.93                     | 22                     | 2           |
| 10              | 16QAM      | 25      | 0         | 21.66                    | 21.61                       | 21.67                     |                        |             |
| 10              | 16QAM      | 25      | 12        | 21.82                    | 21.77                       | 21.75                     |                        |             |
| 10              | 16QAM      | 25      | 25        | 21.81                    | 21.83                       | 21.85                     | 22                     | 2           |
| 10              | 16QAM      | 50      | 0         | 21.73                    | 21.73                       | 21.70                     |                        |             |
| 10              | 64QAM      | 1       | 0         | 21.76                    | 21.70                       | 21.78                     | 22                     | 2           |
| 10              | 64QAM      | 1       | 25        | 21.99                    | 21.96                       | 21.97                     |                        |             |
| 10              | 64QAM      | 1       | 49        | 21.96                    | 21.95                       | 21.96                     |                        |             |
| 10              | 64QAM      | 25      | 0         | 20.70                    | 20.66                       | 20.67                     | 21                     | 3           |
| 10              | 64QAM      | 25      | 12        | 20.87                    | 20.79                       | 20.77                     |                        |             |
| 10              | 64QAM      | 25      | 25        | 20.87                    | 20.88                       | 20.87                     |                        |             |
| 10              | 64QAM      | 50      | 0         | 20.74                    | 20.75                       | 20.74                     | 19                     | 5           |
| 10              | 256QAM     | 1       | 0         | 18.61                    | 18.62                       | 18.60                     |                        |             |
| 10              | 256QAM     | 1       | 25        | 18.83                    | 18.82                       | 18.92                     |                        |             |
| 10              | 256QAM     | 1       | 49        | 19.00                    | 18.99                       | 18.99                     | 19                     | 5           |
| 10              | 256QAM     | 25      | 0         | 18.78                    | 18.61                       | 18.82                     |                        |             |
| 10              | 256QAM     | 25      | 12        | 18.71                    | 18.75                       | 18.64                     |                        |             |
| 10              | 256QAM     | 25      | 25        | 18.86                    | 18.85                       | 18.52                     | 19                     | 5           |
| 10              | 256QAM     | 50      | 0         | 18.77                    | 18.71                       | 18.88                     |                        |             |
| Channel         |            |         |           | 23755                    | 23790                       | 23825                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 706.5                    | 710                         | 713.5                     |                        |             |
| 5               | QPSK       | 1       | 0         | 23.54                    | 23.62                       | 23.64                     | 24                     | 0           |
| 5               | QPSK       | 1       | 12        | 23.61                    | 23.62                       | 23.69                     |                        |             |
| 5               | QPSK       | 1       | 24        | 23.67                    | 23.67                       | 23.68                     |                        |             |
| 5               | QPSK       | 12      | 0         | 22.62                    | 22.69                       | 22.77                     | 23                     | 1           |
| 5               | QPSK       | 12      | 7         | 22.76                    | 22.76                       | 22.79                     |                        |             |
| 5               | QPSK       | 12      | 13        | 22.74                    | 22.86                       | 22.82                     |                        |             |
| 5               | QPSK       | 25      | 0         | 22.72                    | 22.73                       | 22.77                     | 23                     | 1           |
| 5               | 16QAM      | 1       | 0         | 22.88                    | 22.96                       | 22.98                     |                        |             |
| 5               | 16QAM      | 1       | 12        | 22.94                    | 22.96                       | 22.94                     |                        |             |
| 5               | 16QAM      | 1       | 24        | 22.96                    | 22.94                       | 22.99                     | 22                     | 2           |
| 5               | 16QAM      | 12      | 0         | 21.67                    | 21.75                       | 21.75                     |                        |             |
| 5               | 16QAM      | 12      | 7         | 21.77                    | 21.80                       | 21.79                     |                        |             |
| 5               | 16QAM      | 12      | 13        | 21.77                    | 21.83                       | 21.84                     | 22                     | 2           |
| 5               | 16QAM      | 25      | 0         | 21.73                    | 21.77                       | 21.80                     |                        |             |
| 5               | 64QAM      | 1       | 0         | 21.80                    | 21.84                       | 21.92                     |                        |             |
| 5               | 64QAM      | 1       | 12        | 21.86                    | 21.96                       | 21.94                     | 22                     | 2           |
| 5               | 64QAM      | 1       | 24        | 21.92                    | 21.94                       | 21.98                     |                        |             |
| 5               | 64QAM      | 12      | 0         | 20.73                    | 20.83                       | 20.79                     |                        |             |
| 5               | 64QAM      | 12      | 7         | 20.79                    | 20.82                       | 20.84                     | 21                     | 3           |
| 5               | 64QAM      | 12      | 13        | 20.82                    | 20.88                       | 20.86                     |                        |             |
| 5               | 64QAM      | 25      | 0         | 20.75                    | 20.78                       | 20.80                     |                        |             |



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|   |        |    |    |       |       |       |    |   |
|---|--------|----|----|-------|-------|-------|----|---|
| 5 | 256QAM | 1  | 0  | 18.55 | 18.56 | 18.57 | 19 | 5 |
| 5 | 256QAM | 1  | 12 | 18.81 | 18.80 | 18.91 |    |   |
| 5 | 256QAM | 1  | 24 | 19.00 | 18.92 | 18.99 |    |   |
| 5 | 256QAM | 12 | 0  | 18.75 | 18.60 | 18.73 | 19 | 5 |
| 5 | 256QAM | 12 | 7  | 18.61 | 18.67 | 18.60 |    |   |
| 5 | 256QAM | 12 | 13 | 18.76 | 18.78 | 18.49 |    |   |
| 5 | 256QAM | 25 | 0  | 18.71 | 18.61 | 18.85 |    |   |



**<LTE Band 25>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 26140                 | 26340                    | 26590                  |                     |          |
| Frequency (MHz) |            |         |           | 1860                  | 1880                     | 1905                   |                     |          |
| 20              | QPSK       | 1       | 0         | 22.06                 | 22.08                    | 22.08                  | 22.8                | 0        |
| 20              | QPSK       | 1       | 49        | 22.08                 | 22.13                    | 22.09                  |                     |          |
| 20              | QPSK       | 1       | 99        | 22.00                 | 22.07                    | 21.96                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.13                 | 22.23                    | 22.14                  | 22.8                | 0        |
| 20              | QPSK       | 50      | 24        | 22.20                 | 22.32                    | 22.12                  |                     |          |
| 20              | QPSK       | 50      | 50        | 22.15                 | 22.26                    | 22.15                  |                     |          |
| 20              | QPSK       | 100     | 0         | 22.20                 | 22.21                    | 22.13                  | 22.8                | 0        |
| 20              | 16QAM      | 1       | 0         | 22.43                 | 22.47                    | 22.42                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 22.35                 | 22.52                    | 22.40                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 22.38                 | 22.42                    | 22.30                  | 22                  | 0.8      |
| 20              | 16QAM      | 50      | 0         | 21.73                 | 21.87                    | 21.78                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 21.80                 | 21.95                    | 21.77                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 21.74                 | 21.90                    | 21.80                  | 22                  | 0.8      |
| 20              | 16QAM      | 100     | 0         | 21.77                 | 21.83                    | 21.74                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 21.91                 | 21.88                    | 21.91                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 21.76                 | 21.94                    | 21.88                  | 22                  | 0.8      |
| 20              | 64QAM      | 1       | 99        | 21.88                 | 21.93                    | 21.84                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 20.75                 | 20.89                    | 20.83                  | 21                  | 1.8      |
| 20              | 64QAM      | 50      | 24        | 20.82                 | 20.98                    | 20.80                  |                     |          |
| 20              | 64QAM      | 50      | 50        | 20.75                 | 20.92                    | 20.82                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 20.79                 | 20.86                    | 20.77                  | 19                  | 3.8      |
| 20              | 256QAM     | 1       | 0         | 18.78                 | 18.77                    | 18.93                  |                     |          |
| 20              | 256QAM     | 1       | 49        | 18.78                 | 18.92                    | 18.77                  |                     |          |
| 20              | 256QAM     | 1       | 99        | 18.85                 | 18.98                    | 18.85                  | 19                  | 3.8      |
| 20              | 256QAM     | 50      | 0         | 18.77                 | 18.82                    | 18.73                  |                     |          |
| 20              | 256QAM     | 50      | 24        | 18.82                 | 18.91                    | 18.71                  |                     |          |
| 20              | 256QAM     | 50      | 50        | 18.77                 | 18.87                    | 18.75                  | 18.82               | 18.75    |
| 20              | 256QAM     | 100     | 0         | 18.82                 | 18.83                    | 18.75                  |                     |          |
| Channel         |            |         |           | 26115                 | 26340                    | 26615                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1857.5                | 1880                     | 1907.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 22.09                 | 22.16                    | 22.10                  | 22.8                | 0        |
| 15              | QPSK       | 1       | 37        | 22.03                 | 22.13                    | 22.06                  |                     |          |
| 15              | QPSK       | 1       | 74        | 22.01                 | 22.13                    | 22.02                  |                     |          |
| 15              | QPSK       | 36      | 0         | 22.13                 | 22.23                    | 22.14                  | 22.8                | 0        |
| 15              | QPSK       | 36      | 20        | 22.18                 | 22.29                    | 22.19                  |                     |          |
| 15              | QPSK       | 36      | 39        | 22.12                 | 22.23                    | 22.12                  |                     |          |
| 15              | QPSK       | 75      | 0         | 22.15                 | 22.19                    | 22.09                  | 22.8                | 0        |
| 15              | 16QAM      | 1       | 0         | 22.37                 | 22.51                    | 22.42                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 22.38                 | 22.50                    | 22.36                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 22.35                 | 22.44                    | 22.32                  | 22                  | 0.8      |
| 15              | 16QAM      | 36      | 0         | 21.72                 | 21.81                    | 21.79                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 21.75                 | 21.89                    | 21.84                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 21.71                 | 21.82                    | 21.76                  | 22                  | 0.8      |
| 15              | 16QAM      | 75      | 0         | 21.76                 | 21.79                    | 21.75                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 21.86                 | 21.96                    | 21.85                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 21.89                 | 21.98                    | 21.90                  | 21                  | 1.8      |
| 15              | 64QAM      | 1       | 74        | 21.81                 | 21.92                    | 21.83                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 20.76                 | 20.87                    | 20.81                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 20.79                 | 20.91                    | 20.83                  | 20.75               | 20.82    |
| 15              | 64QAM      | 36      | 39        | 20.75                 | 20.89                    | 20.82                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 20.75                 | 20.80                    | 20.73                  |                     |          |



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|                 |        |    |    |        |       |        |                     |          |
|-----------------|--------|----|----|--------|-------|--------|---------------------|----------|
| 15              | 256QAM | 1  | 0  | 18.69  | 18.69 | 18.89  | 19                  | 3.8      |
| 15              | 256QAM | 1  | 37 | 18.72  | 18.87 | 18.68  |                     |          |
| 15              | 256QAM | 1  | 74 | 18.80  | 18.91 | 18.84  |                     |          |
| 15              | 256QAM | 36 | 0  | 18.69  | 18.76 | 18.63  | 19                  | 3.8      |
| 15              | 256QAM | 36 | 20 | 18.76  | 18.83 | 18.62  |                     |          |
| 15              | 256QAM | 36 | 39 | 18.67  | 18.81 | 18.70  |                     |          |
| 15              | 256QAM | 75 | 0  | 18.82  | 18.81 | 18.65  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 26090  | 26340 | 26640  |                     |          |
| Frequency (MHz) |        |    |    | 1855   | 1880  | 1910   |                     |          |
| 10              | QPSK   | 1  | 0  | 22.01  | 22.12 | 22.03  | 22.8                | 0        |
| 10              | QPSK   | 1  | 25 | 21.97  | 22.10 | 22.02  |                     |          |
| 10              | QPSK   | 1  | 49 | 21.96  | 22.07 | 21.98  |                     |          |
| 10              | QPSK   | 25 | 0  | 22.11  | 22.14 | 22.12  | 22.8                | 0        |
| 10              | QPSK   | 25 | 12 | 22.13  | 22.27 | 22.16  |                     |          |
| 10              | QPSK   | 25 | 25 | 22.06  | 22.24 | 22.14  |                     |          |
| 10              | QPSK   | 50 | 0  | 22.04  | 22.24 | 22.16  | 22.8                | 0        |
| 10              | 16QAM  | 1  | 0  | 22.32  | 22.47 | 22.42  |                     |          |
| 10              | 16QAM  | 1  | 25 | 22.28  | 22.51 | 22.41  |                     |          |
| 10              | 16QAM  | 1  | 49 | 22.25  | 22.46 | 22.41  | 22                  | 0.8      |
| 10              | 16QAM  | 25 | 0  | 21.75  | 21.80 | 21.78  |                     |          |
| 10              | 16QAM  | 25 | 12 | 21.76  | 21.91 | 21.79  |                     |          |
| 10              | 16QAM  | 25 | 25 | 21.75  | 21.86 | 21.82  | 22                  | 0.8      |
| 10              | 16QAM  | 50 | 0  | 21.76  | 21.86 | 21.78  |                     |          |
| 10              | 64QAM  | 1  | 0  | 21.86  | 21.90 | 21.92  |                     |          |
| 10              | 64QAM  | 1  | 25 | 21.89  | 21.98 | 21.90  | 21                  | 1.8      |
| 10              | 64QAM  | 1  | 49 | 21.82  | 21.98 | 21.91  |                     |          |
| 10              | 64QAM  | 25 | 0  | 20.77  | 20.81 | 20.81  |                     |          |
| 10              | 64QAM  | 25 | 12 | 20.79  | 20.91 | 20.84  | 19                  | 3.8      |
| 10              | 64QAM  | 25 | 25 | 20.79  | 20.88 | 20.80  |                     |          |
| 10              | 64QAM  | 50 | 0  | 20.80  | 20.90 | 20.81  |                     |          |
| 10              | 256QAM | 1  | 0  | 18.75  | 18.74 | 18.86  | 19                  | 3.8      |
| 10              | 256QAM | 1  | 25 | 18.77  | 18.83 | 18.69  |                     |          |
| 10              | 256QAM | 1  | 49 | 18.81  | 18.95 | 18.75  |                     |          |
| 10              | 256QAM | 25 | 0  | 18.68  | 18.82 | 18.63  | 19                  | 3.8      |
| 10              | 256QAM | 25 | 12 | 18.76  | 18.83 | 18.68  |                     |          |
| 10              | 256QAM | 25 | 25 | 18.77  | 18.86 | 18.65  |                     |          |
| 10              | 256QAM | 50 | 0  | 18.79  | 18.82 | 18.66  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 26065  | 26340 | 26665  |                     |          |
| Frequency (MHz) |        |    |    | 1852.5 | 1880  | 1912.5 |                     |          |
| 5               | QPSK   | 1  | 0  | 21.99  | 22.07 | 21.96  | 22.8                | 0        |
| 5               | QPSK   | 1  | 12 | 21.87  | 22.01 | 21.95  |                     |          |
| 5               | QPSK   | 1  | 24 | 21.88  | 22.05 | 21.92  |                     |          |
| 5               | QPSK   | 12 | 0  | 22.11  | 22.11 | 22.03  | 22.8                | 0        |
| 5               | QPSK   | 12 | 7  | 22.07  | 22.23 | 22.10  |                     |          |
| 5               | QPSK   | 12 | 13 | 22.01  | 22.15 | 22.12  |                     |          |
| 5               | QPSK   | 25 | 0  | 21.99  | 22.18 | 22.07  | 22.8                | 0        |
| 5               | 16QAM  | 1  | 0  | 22.32  | 22.39 | 22.34  |                     |          |
| 5               | 16QAM  | 1  | 12 | 22.28  | 22.45 | 22.33  |                     |          |
| 5               | 16QAM  | 1  | 24 | 22.23  | 22.40 | 22.36  | 22                  | 0.8      |
| 5               | 16QAM  | 12 | 0  | 21.69  | 21.70 | 21.74  |                     |          |
| 5               | 16QAM  | 12 | 7  | 21.74  | 21.81 | 21.78  |                     |          |
| 5               | 16QAM  | 12 | 13 | 21.72  | 21.85 | 21.81  | 22                  | 0.8      |
| 5               | 16QAM  | 25 | 0  | 21.68  | 21.77 | 21.71  |                     |          |
| 5               | 64QAM  | 1  | 0  | 21.84  | 21.89 | 21.86  |                     |          |
| 5               | 64QAM  | 1  | 12 | 21.88  | 21.89 | 21.84  | 22                  | 0.8      |
| 5               | 64QAM  | 1  | 24 | 21.79  | 21.98 | 21.82  |                     |          |



# FCC SAR TEST REPORT

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|                 |        |    |    |        |       |        |                        |             |
|-----------------|--------|----|----|--------|-------|--------|------------------------|-------------|
| 5               | 64QAM  | 12 | 0  | 20.76  | 20.75 | 20.72  | 21                     | 1.8         |
| 5               | 64QAM  | 12 | 7  | 20.75  | 20.82 | 20.75  |                        |             |
| 5               | 64QAM  | 12 | 13 | 20.77  | 20.84 | 20.72  |                        |             |
| 5               | 64QAM  | 25 | 0  | 20.70  | 20.86 | 20.74  |                        |             |
| 5               | 256QAM | 1  | 0  | 18.78  | 18.68 | 18.85  | 19                     | 3.8         |
| 5               | 256QAM | 1  | 12 | 18.72  | 18.83 | 18.69  |                        |             |
| 5               | 256QAM | 1  | 24 | 18.85  | 18.96 | 18.81  |                        |             |
| 5               | 256QAM | 12 | 0  | 18.73  | 18.72 | 18.73  | 19                     | 3.8         |
| 5               | 256QAM | 12 | 7  | 18.79  | 18.86 | 18.64  |                        |             |
| 5               | 256QAM | 12 | 13 | 18.76  | 18.83 | 18.68  |                        |             |
| 5               | 256QAM | 25 | 0  | 18.82  | 18.76 | 18.73  |                        |             |
| Channel         |        |    |    | 26055  | 26340 | 26675  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |        |    |    | 1851.5 | 1880  | 1913.5 |                        |             |
| 3               | QPSK   | 1  | 0  | 21.93  | 22.06 | 22.03  | 22.8                   | 0           |
| 3               | QPSK   | 1  | 8  | 21.94  | 22.06 | 21.97  |                        |             |
| 3               | QPSK   | 1  | 14 | 21.91  | 22.01 | 21.88  |                        |             |
| 3               | QPSK   | 8  | 0  | 22.04  | 22.10 | 22.11  | 22.8                   | 0           |
| 3               | QPSK   | 8  | 4  | 22.10  | 22.17 | 22.08  |                        |             |
| 3               | QPSK   | 8  | 7  | 22.00  | 22.23 | 22.06  |                        |             |
| 3               | QPSK   | 15 | 0  | 21.99  | 22.15 | 22.12  |                        |             |
| 3               | 16QAM  | 1  | 0  | 22.32  | 22.42 | 22.36  | 22.8                   | 0           |
| 3               | 16QAM  | 1  | 8  | 22.25  | 22.50 | 22.35  |                        |             |
| 3               | 16QAM  | 1  | 14 | 22.24  | 22.37 | 22.40  |                        |             |
| 3               | 16QAM  | 8  | 0  | 21.70  | 21.77 | 21.76  | 22                     | 0.8         |
| 3               | 16QAM  | 8  | 4  | 21.67  | 21.83 | 21.77  |                        |             |
| 3               | 16QAM  | 8  | 7  | 21.65  | 21.83 | 21.81  |                        |             |
| 3               | 16QAM  | 15 | 0  | 21.72  | 21.80 | 21.70  |                        |             |
| 3               | 64QAM  | 1  | 0  | 21.81  | 21.84 | 21.88  | 22                     | 0.8         |
| 3               | 64QAM  | 1  | 8  | 21.80  | 21.96 | 21.85  |                        |             |
| 3               | 64QAM  | 1  | 14 | 21.74  | 21.88 | 21.90  |                        |             |
| 3               | 64QAM  | 8  | 0  | 20.77  | 20.78 | 20.74  | 21                     | 1.8         |
| 3               | 64QAM  | 8  | 4  | 20.78  | 20.85 | 20.77  |                        |             |
| 3               | 64QAM  | 8  | 7  | 20.76  | 20.86 | 20.72  |                        |             |
| 3               | 64QAM  | 15 | 0  | 20.70  | 20.86 | 20.72  |                        |             |
| 3               | 256QAM | 1  | 0  | 18.68  | 18.70 | 18.93  | 19                     | 3.8         |
| 3               | 256QAM | 1  | 8  | 18.73  | 18.88 | 18.73  |                        |             |
| 3               | 256QAM | 1  | 14 | 18.84  | 18.95 | 18.79  |                        |             |
| 3               | 256QAM | 8  | 0  | 18.68  | 18.78 | 18.70  | 19                     | 3.8         |
| 3               | 256QAM | 8  | 4  | 18.78  | 18.85 | 18.61  |                        |             |
| 3               | 256QAM | 8  | 7  | 18.71  | 18.82 | 18.75  |                        |             |
| 3               | 256QAM | 15 | 0  | 18.82  | 18.73 | 18.74  |                        |             |
| Channel         |        |    |    | 26047  | 26340 | 26683  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |        |    |    | 1850.7 | 1880  | 1914.3 |                        |             |
| 1.4             | QPSK   | 1  | 0  | 21.89  | 22.00 | 21.86  | 22.8                   | 0           |
| 1.4             | QPSK   | 1  | 3  | 21.95  | 22.15 | 22.01  |                        |             |
| 1.4             | QPSK   | 1  | 5  | 21.90  | 22.09 | 21.95  |                        |             |
| 1.4             | QPSK   | 3  | 0  | 21.91  | 22.09 | 21.91  |                        |             |
| 1.4             | QPSK   | 3  | 1  | 21.94  | 22.10 | 21.94  |                        |             |
| 1.4             | QPSK   | 3  | 3  | 21.90  | 22.11 | 21.95  |                        |             |
| 1.4             | QPSK   | 6  | 0  | 21.98  | 22.15 | 22.01  | 22.8                   | 0           |
| 1.4             | 16QAM  | 1  | 0  | 22.21  | 22.31 | 22.23  | 22.8                   | 0           |
| 1.4             | 16QAM  | 1  | 3  | 22.33  | 22.49 | 22.34  |                        |             |
| 1.4             | 16QAM  | 1  | 5  | 22.31  | 22.42 | 22.26  |                        |             |
| 1.4             | 16QAM  | 3  | 0  | 22.00  | 22.13 | 22.02  |                        |             |
| 1.4             | 16QAM  | 3  | 1  | 22.03  | 22.21 | 22.09  |                        |             |
| 1.4             | 16QAM  | 3  | 3  | 21.99  | 22.15 | 22.05  |                        |             |



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|     |        |   |   |       |       |       |      |     |
|-----|--------|---|---|-------|-------|-------|------|-----|
| 1.4 | 16QAM  | 6 | 0 | 21.75 | 21.86 | 21.70 | 22   | 0.8 |
| 1.4 | 64QAM  | 1 | 0 | 21.78 | 21.81 | 21.76 | 22   | 0.8 |
| 1.4 | 64QAM  | 1 | 3 | 21.85 | 21.99 | 21.85 |      |     |
| 1.4 | 64QAM  | 1 | 5 | 21.83 | 21.96 | 21.79 |      |     |
| 1.4 | 64QAM  | 3 | 0 | 21.75 | 21.86 | 21.71 |      |     |
| 1.4 | 64QAM  | 3 | 1 | 21.80 | 21.96 | 21.78 |      |     |
| 1.4 | 64QAM  | 3 | 3 | 21.79 | 21.92 | 21.75 |      |     |
| 1.4 | 64QAM  | 6 | 0 | 20.68 | 20.79 | 20.65 | 22.8 | 0   |
| 1.4 | 256QAM | 1 | 0 | 18.71 | 18.77 | 18.87 | 19   | 3.8 |
| 1.4 | 256QAM | 1 | 3 | 18.77 | 18.91 | 18.76 |      |     |
| 1.4 | 256QAM | 1 | 5 | 18.81 | 18.96 | 18.77 |      |     |
| 1.4 | 256QAM | 3 | 0 | 18.68 | 18.80 | 18.64 |      |     |
| 1.4 | 256QAM | 3 | 1 | 18.82 | 18.90 | 18.68 |      |     |
| 1.4 | 256QAM | 3 | 3 | 18.76 | 18.78 | 18.65 |      |     |
| 1.4 | 256QAM | 6 | 0 | 18.81 | 18.81 | 18.68 | 19   | 3.8 |



**<LTE Band 26>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 26765                 | 26865                    | 26965                  |                     |          |
| Frequency (MHz) |            |         |           | 821.5                 | 831.5                    | 841.5                  |                     |          |
| 15              | QPSK       | 1       | 0         | 24.00                 | 23.91                    | 23.96                  |                     |          |
| 15              | QPSK       | 1       | 37        | 23.88                 | 23.88                    | 23.87                  | 24                  | 0        |
| 15              | QPSK       | 1       | 74        | 23.89                 | 23.85                    | 23.73                  | 23                  | 1        |
| 15              | QPSK       | 36      | 0         | 22.71                 | 22.76                    | 22.75                  |                     |          |
| 15              | QPSK       | 36      | 20        | 22.72                 | 22.74                    | 22.70                  |                     |          |
| 15              | QPSK       | 36      | 39        | 22.76                 | 22.75                    | 22.69                  |                     |          |
| 15              | QPSK       | 75      | 0         | 22.75                 | 22.69                    | 22.71                  | 23                  | 1        |
| 15              | 16QAM      | 1       | 0         | 23.00                 | 22.94                    | 22.92                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 22.90                 | 22.93                    | 22.93                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 22.93                 | 22.95                    | 22.70                  | 22                  | 2        |
| 15              | 16QAM      | 36      | 0         | 21.71                 | 21.74                    | 21.78                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 21.76                 | 21.72                    | 21.69                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 21.77                 | 21.78                    | 21.67                  |                     |          |
| 15              | 16QAM      | 75      | 0         | 21.77                 | 21.72                    | 21.71                  | 22                  | 2        |
| 15              | 64QAM      | 1       | 0         | 21.79                 | 21.81                    | 21.83                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 21.83                 | 21.89                    | 21.85                  |                     |          |
| 15              | 64QAM      | 1       | 74        | 21.84                 | 21.85                    | 21.30                  | 21                  | 3        |
| 15              | 64QAM      | 36      | 0         | 20.74                 | 20.81                    | 20.82                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 20.77                 | 20.79                    | 20.71                  |                     |          |
| 15              | 64QAM      | 36      | 39        | 20.83                 | 20.83                    | 20.73                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 20.76                 | 20.75                    | 20.72                  | 19.5                | 4.5      |
| 15              | 256QAM     | 1       | 0         | 19.00                 | 19.02                    | 19.01                  |                     |          |
| 15              | 256QAM     | 1       | 37        | 19.08                 | 19.11                    | 19.08                  |                     |          |
| 15              | 256QAM     | 1       | 74        | 19.06                 | 19.11                    | 19.09                  | 19.5                | 4.5      |
| 15              | 256QAM     | 36      | 0         | 19.04                 | 19.05                    | 19.01                  |                     |          |
| 15              | 256QAM     | 36      | 20        | 19.00                 | 18.98                    | 19.05                  |                     |          |
| 15              | 256QAM     | 36      | 39        | 18.99                 | 18.98                    | 19.01                  |                     |          |
| 15              | 256QAM     | 75      | 0         | 19.01                 | 19.00                    | 18.99                  |                     |          |
| Channel         |            |         |           | 26740                 | 26865                    | 26990                  |                     |          |
| Frequency (MHz) |            |         |           | 819                   | 831.5                    | 844                    |                     |          |
| 10              | QPSK       | 1       | 0         | 23.98                 | 23.98                    | 23.98                  | 24                  | 0        |
| 10              | QPSK       | 1       | 25        | 23.90                 | 23.98                    | 23.88                  |                     |          |
| 10              | QPSK       | 1       | 49        | 23.93                 | 23.97                    | 23.79                  |                     |          |
| 10              | QPSK       | 25      | 0         | 22.79                 | 22.73                    | 22.76                  | 23                  | 1        |
| 10              | QPSK       | 25      | 12        | 22.77                 | 22.74                    | 22.72                  |                     |          |
| 10              | QPSK       | 25      | 25        | 22.67                 | 22.75                    | 22.69                  |                     |          |
| 10              | QPSK       | 50      | 0         | 22.75                 | 22.71                    | 22.70                  |                     |          |
| 10              | 16QAM      | 1       | 0         | 23.00                 | 22.96                    | 22.96                  | 23                  | 1        |
| 10              | 16QAM      | 1       | 25        | 22.97                 | 22.97                    | 23.00                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 22.93                 | 22.95                    | 22.85                  |                     |          |
| 10              | 16QAM      | 25      | 0         | 21.79                 | 21.76                    | 21.78                  | 22                  | 2        |
| 10              | 16QAM      | 25      | 12        | 21.77                 | 21.75                    | 21.70                  |                     |          |
| 10              | 16QAM      | 25      | 25        | 21.63                 | 21.75                    | 21.66                  |                     |          |
| 10              | 16QAM      | 50      | 0         | 21.76                 | 21.70                    | 21.69                  |                     |          |
| 10              | 64QAM      | 1       | 0         | 21.86                 | 21.83                    | 21.97                  | 22                  | 2        |
| 10              | 64QAM      | 1       | 25        | 21.92                 | 21.98                    | 21.80                  |                     |          |
| 10              | 64QAM      | 1       | 49        | 21.91                 | 21.92                    | 21.26                  |                     |          |
| 10              | 64QAM      | 25      | 0         | 20.78                 | 20.77                    | 20.79                  | 21                  | 3        |
| 10              | 64QAM      | 25      | 12        | 20.82                 | 20.78                    | 20.79                  |                     |          |
| 10              | 64QAM      | 25      | 25        | 20.72                 | 20.76                    | 20.49                  |                     |          |
| 10              | 64QAM      | 50      | 0         | 20.77                 | 20.75                    | 20.72                  |                     |          |



# FCC SAR TEST REPORT

Report No. : FA041658-01A

|                 |        |    |    |       |       |       |                        |             |
|-----------------|--------|----|----|-------|-------|-------|------------------------|-------------|
| 10              | 256QAM | 1  | 0  | 18.99 | 18.97 | 19.01 | 19.5                   | 4.5         |
| 10              | 256QAM | 1  | 25 | 19.00 | 19.03 | 19.02 |                        |             |
| 10              | 256QAM | 1  | 49 | 19.00 | 19.03 | 19.02 |                        |             |
| 10              | 256QAM | 25 | 0  | 18.94 | 19.01 | 18.96 | 19.5                   | 4.5         |
| 10              | 256QAM | 25 | 12 | 18.94 | 18.98 | 19.02 |                        |             |
| 10              | 256QAM | 25 | 25 | 18.90 | 18.95 | 18.92 |                        |             |
| 10              | 256QAM | 50 | 0  | 18.99 | 18.95 | 18.90 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Channel         |        |    |    | 26715 | 26865 | 27015 |                        |             |
| Frequency (MHz) |        |    |    | 816.5 | 831.5 | 846.5 |                        |             |
| 5               | QPSK   | 1  | 0  | 23.91 | 23.79 | 23.79 | 24                     | 0           |
| 5               | QPSK   | 1  | 12 | 23.83 | 23.84 | 23.71 |                        |             |
| 5               | QPSK   | 1  | 24 | 23.70 | 23.83 | 23.63 |                        |             |
| 5               | QPSK   | 12 | 0  | 22.96 | 22.87 | 22.89 | 23                     | 1           |
| 5               | QPSK   | 12 | 7  | 22.89 | 22.93 | 22.83 |                        |             |
| 5               | QPSK   | 12 | 13 | 22.82 | 22.89 | 22.72 |                        |             |
| 5               | QPSK   | 25 | 0  | 22.89 | 22.83 | 22.80 | 23                     | 1           |
| 5               | 16QAM  | 1  | 0  | 22.94 | 22.79 | 22.78 |                        |             |
| 5               | 16QAM  | 1  | 12 | 22.82 | 22.90 | 22.66 |                        |             |
| 5               | 16QAM  | 1  | 24 | 22.74 | 22.87 | 22.64 | 22                     | 2           |
| 5               | 16QAM  | 12 | 0  | 21.68 | 21.60 | 21.58 |                        |             |
| 5               | 16QAM  | 12 | 7  | 21.67 | 21.67 | 21.55 |                        |             |
| 5               | 16QAM  | 12 | 13 | 21.53 | 21.59 | 21.46 | 22                     | 2           |
| 5               | 16QAM  | 25 | 0  | 21.61 | 21.53 | 21.51 |                        |             |
| 5               | 64QAM  | 1  | 0  | 21.57 | 21.73 | 21.68 | 22                     | 2           |
| 5               | 64QAM  | 1  | 12 | 21.67 | 21.78 | 21.31 |                        |             |
| 5               | 64QAM  | 1  | 24 | 21.59 | 21.79 | 21.18 |                        |             |
| 5               | 64QAM  | 12 | 0  | 20.56 | 20.68 | 20.40 | 21                     | 3           |
| 5               | 64QAM  | 12 | 7  | 20.58 | 20.71 | 20.23 |                        |             |
| 5               | 64QAM  | 12 | 13 | 20.50 | 20.61 | 20.18 |                        |             |
| 5               | 64QAM  | 25 | 0  | 20.46 | 20.58 | 20.35 | 19.5                   | 4.5         |
| 5               | 256QAM | 1  | 0  | 18.90 | 19.02 | 18.92 |                        |             |
| 5               | 256QAM | 1  | 12 | 19.03 | 19.10 | 19.01 |                        |             |
| 5               | 256QAM | 1  | 24 | 19.05 | 19.06 | 19.09 | 19.5                   | 4.5         |
| 5               | 256QAM | 12 | 0  | 19.04 | 18.97 | 18.96 |                        |             |
| 5               | 256QAM | 12 | 7  | 18.96 | 18.93 | 18.99 |                        |             |
| 5               | 256QAM | 12 | 13 | 18.91 | 18.91 | 18.91 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| 5               | 256QAM | 25 | 0  | 18.96 | 18.96 | 18.98 |                        |             |
| Channel         |        |    |    | 26705 | 26865 | 27025 |                        |             |
| Frequency (MHz) |        |    |    | 815.5 | 831.5 | 847.5 |                        |             |
| 3               | QPSK   | 1  | 0  | 23.96 | 23.98 | 23.94 | 24                     | 0           |
| 3               | QPSK   | 1  | 8  | 23.86 | 23.88 | 23.85 |                        |             |
| 3               | QPSK   | 1  | 14 | 23.89 | 23.90 | 23.77 |                        |             |
| 3               | QPSK   | 8  | 0  | 22.69 | 22.73 | 22.67 | 23                     | 1           |
| 3               | QPSK   | 8  | 4  | 22.67 | 22.67 | 22.70 |                        |             |
| 3               | QPSK   | 8  | 7  | 22.67 | 22.67 | 22.69 |                        |             |
| 3               | QPSK   | 15 | 0  | 22.75 | 22.69 | 22.62 | 23                     | 1           |
| 3               | 16QAM  | 1  | 0  | 22.94 | 22.94 | 22.87 |                        |             |
| 3               | 16QAM  | 1  | 8  | 22.94 | 22.91 | 23.00 |                        |             |
| 3               | 16QAM  | 1  | 14 | 22.93 | 22.91 | 22.80 | 22                     | 2           |
| 3               | 16QAM  | 8  | 0  | 21.73 | 21.69 | 21.76 |                        |             |
| 3               | 16QAM  | 8  | 4  | 21.73 | 21.72 | 21.60 |                        |             |
| 3               | 16QAM  | 8  | 7  | 21.56 | 21.71 | 21.59 | 22                     | 2           |
| 3               | 16QAM  | 15 | 0  | 21.68 | 21.65 | 21.68 |                        |             |
| 3               | 64QAM  | 1  | 0  | 21.85 | 21.80 | 21.96 |                        |             |
| 3               | 64QAM  | 1  | 8  | 21.88 | 21.94 | 21.75 | 22                     | 2           |
| 3               | 64QAM  | 1  | 14 | 21.91 | 21.82 | 21.19 |                        |             |



# FCC SAR TEST REPORT

Report No. : FA041658-01A

|                 |        |    |    |       |       |       |                        |             |
|-----------------|--------|----|----|-------|-------|-------|------------------------|-------------|
| 3               | 64QAM  | 8  | 0  | 20.72 | 20.72 | 20.73 | 21                     | 3           |
| 3               | 64QAM  | 8  | 4  | 20.80 | 20.72 | 20.79 |                        |             |
| 3               | 64QAM  | 8  | 7  | 20.65 | 20.68 | 20.40 |                        |             |
| 3               | 64QAM  | 15 | 0  | 20.77 | 20.68 | 20.71 | 19.5                   | 4.5         |
| 3               | 256QAM | 1  | 0  | 18.92 | 19.01 | 18.91 |                        |             |
| 3               | 256QAM | 1  | 8  | 19.02 | 19.06 | 19.02 |                        |             |
| 3               | 256QAM | 1  | 14 | 19.05 | 19.06 | 19.03 | 19.5                   | 4.5         |
| 3               | 256QAM | 8  | 0  | 19.01 | 19.05 | 19.00 |                        |             |
| 3               | 256QAM | 8  | 4  | 18.90 | 18.95 | 18.97 |                        |             |
| 3               | 256QAM | 8  | 7  | 18.95 | 18.96 | 18.98 |                        |             |
| 3               | 256QAM | 15 | 0  | 18.95 | 18.92 | 18.99 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Channel         |        |    |    | 26697 | 26865 | 27033 |                        |             |
| Frequency (MHz) |        |    |    | 814.7 | 831.5 | 848.3 | 24                     | 0           |
| 1.4             | QPSK   | 1  | 0  | 23.81 | 23.72 | 23.55 |                        |             |
| 1.4             | QPSK   | 1  | 3  | 23.82 | 23.77 | 23.59 |                        |             |
| 1.4             | QPSK   | 1  | 5  | 23.73 | 23.72 | 23.52 |                        |             |
| 1.4             | QPSK   | 3  | 0  | 23.84 | 23.72 | 23.54 |                        |             |
| 1.4             | QPSK   | 3  | 1  | 23.86 | 23.79 | 23.65 |                        |             |
| 1.4             | QPSK   | 3  | 3  | 23.79 | 23.75 | 23.56 |                        |             |
| 1.4             | QPSK   | 6  | 0  | 22.87 | 22.75 | 22.67 | 23                     | 1           |
| 1.4             | 16QAM  | 1  | 0  | 23.00 | 22.94 | 22.91 | 23                     | 1           |
| 1.4             | 16QAM  | 1  | 3  | 23.00 | 23.00 | 22.97 |                        |             |
| 1.4             | 16QAM  | 1  | 5  | 22.90 | 22.96 | 22.69 |                        |             |
| 1.4             | 16QAM  | 3  | 0  | 22.92 | 22.85 | 22.68 |                        |             |
| 1.4             | 16QAM  | 3  | 1  | 22.96 | 22.88 | 22.72 |                        |             |
| 1.4             | 16QAM  | 3  | 3  | 22.87 | 22.86 | 22.65 | 22                     | 2           |
| 1.4             | 16QAM  | 6  | 0  | 21.97 | 21.84 | 21.77 |                        |             |
| 1.4             | 64QAM  | 1  | 0  | 21.98 | 21.99 | 21.67 | 22                     | 2           |
| 1.4             | 64QAM  | 1  | 3  | 22.00 | 22.00 | 21.70 |                        |             |
| 1.4             | 64QAM  | 1  | 5  | 21.99 | 22.00 | 21.64 |                        |             |
| 1.4             | 64QAM  | 3  | 0  | 21.99 | 21.92 | 21.62 |                        |             |
| 1.4             | 64QAM  | 3  | 1  | 22.00 | 21.99 | 21.61 |                        |             |
| 1.4             | 64QAM  | 3  | 3  | 21.89 | 21.97 | 21.55 |                        |             |
| 1.4             | 64QAM  | 6  | 0  | 20.76 | 20.81 | 20.46 | 21                     | 3           |
| 1.4             | 256QAM | 1  | 0  | 18.90 | 18.98 | 19.00 | 19.5                   | 4.5         |
| 1.4             | 256QAM | 1  | 3  | 19.01 | 19.04 | 19.08 |                        |             |
| 1.4             | 256QAM | 1  | 5  | 19.02 | 19.08 | 19.08 |                        |             |
| 1.4             | 256QAM | 3  | 0  | 19.04 | 19.02 | 18.95 |                        |             |
| 1.4             | 256QAM | 3  | 1  | 18.96 | 18.93 | 19.03 |                        |             |
| 1.4             | 256QAM | 3  | 3  | 18.89 | 18.94 | 18.99 |                        |             |
| 1.4             | 256QAM | 6  | 0  | 18.91 | 18.95 | 18.98 | 19.5                   | 4.5         |



**<LTE Band 30>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 27710                    |                             |                           |                        |             |
| Frequency (MHz) |            |         |           | 2310                     |                             |                           |                        |             |
| 10              | QPSK       | 1       | 0         |                          | 20.92                       |                           | 21                     | 0           |
| 10              | QPSK       | 1       | 25        |                          | 20.99                       |                           |                        |             |
| 10              | QPSK       | 1       | 49        |                          | 20.91                       |                           |                        |             |
| 10              | QPSK       | 25      | 0         |                          | 20.13                       |                           | 20.5                   | 0.5         |
| 10              | QPSK       | 25      | 12        |                          | 20.13                       |                           |                        |             |
| 10              | QPSK       | 25      | 25        |                          | 20.14                       |                           |                        |             |
| 10              | QPSK       | 50      | 0         |                          | 20.12                       |                           | 20.5                   | 0.5         |
| 10              | 16QAM      | 1       | 0         |                          | 20.40                       |                           |                        |             |
| 10              | 16QAM      | 1       | 25        |                          | 20.48                       |                           |                        |             |
| 10              | 16QAM      | 1       | 49        |                          | 20.50                       |                           | 19.5                   | 1.5         |
| 10              | 16QAM      | 25      | 0         |                          | 19.12                       |                           |                        |             |
| 10              | 16QAM      | 25      | 12        |                          | 19.11                       |                           |                        |             |
| 10              | 16QAM      | 25      | 25        |                          | 19.23                       |                           | 19.5                   | 1.5         |
| 10              | 16QAM      | 50      | 0         |                          | 19.18                       |                           |                        |             |
| 10              | 64QAM      | 1       | 0         |                          | 19.25                       |                           | 19.5                   | 1.5         |
| 10              | 64QAM      | 1       | 25        |                          | 19.38                       |                           |                        |             |
| 10              | 64QAM      | 1       | 49        |                          | 19.33                       |                           |                        |             |
| 10              | 64QAM      | 25      | 0         |                          | 18.15                       |                           | 18.5                   | 2.5         |
| 10              | 64QAM      | 25      | 12        |                          | 18.18                       |                           |                        |             |
| 10              | 64QAM      | 25      | 25        |                          | 18.20                       |                           |                        |             |
| 10              | 64QAM      | 50      | 0         |                          | 18.21                       |                           | 17                     | 4           |
| 10              | 256QAM     | 1       | 0         |                          | 16.19                       |                           |                        |             |
| 10              | 256QAM     | 1       | 25        |                          | 16.16                       |                           |                        |             |
| 10              | 256QAM     | 1       | 49        |                          | 16.19                       |                           | 17                     | 4           |
| 10              | 256QAM     | 25      | 0         |                          | 16.10                       |                           |                        |             |
| 10              | 256QAM     | 25      | 12        |                          | 16.18                       |                           |                        |             |
| 10              | 256QAM     | 25      | 25        |                          | 16.18                       |                           | 16.17                  |             |
| 10              | 256QAM     | 50      | 0         |                          | 16.17                       |                           |                        |             |
| Channel         |            |         |           | 27685                    | 27710                       | 27735                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 2307.5                   | 2310                        | 2312.5                    |                        |             |
| 5               | QPSK       | 1       | 0         | 20.84                    | 20.82                       | 20.91                     | 21                     | 0           |
| 5               | QPSK       | 1       | 12        | 20.93                    | 20.91                       | 20.89                     |                        |             |
| 5               | QPSK       | 1       | 24        | 20.89                    | 20.91                       | 20.85                     |                        |             |
| 5               | QPSK       | 12      | 0         | 20.09                    | 20.12                       | 20.18                     | 20.5                   | 0.5         |
| 5               | QPSK       | 12      | 7         | 20.20                    | 20.15                       | 20.25                     |                        |             |
| 5               | QPSK       | 12      | 13        | 20.20                    | 20.16                       | 20.25                     |                        |             |
| 5               | QPSK       | 25      | 0         | 20.15                    | 20.12                       | 20.23                     | 20.5                   | 0.5         |
| 5               | 16QAM      | 1       | 0         | 20.31                    | 20.29                       | 20.43                     |                        |             |
| 5               | 16QAM      | 1       | 12        | 20.38                    | 20.42                       | 20.45                     |                        |             |
| 5               | 16QAM      | 1       | 24        | 20.45                    | 20.41                       | 20.45                     | 19.5                   | 1.5         |
| 5               | 16QAM      | 12      | 0         | 19.10                    | 19.15                       | 19.18                     |                        |             |
| 5               | 16QAM      | 12      | 7         | 19.24                    | 19.16                       | 19.25                     |                        |             |
| 5               | 16QAM      | 12      | 13        | 19.21                    | 19.17                       | 19.23                     | 19.5                   | 1.5         |
| 5               | 16QAM      | 25      | 0         | 19.21                    | 19.15                       | 19.21                     |                        |             |
| 5               | 64QAM      | 1       | 0         | 19.22                    | 19.22                       | 19.39                     |                        |             |
| 5               | 64QAM      | 1       | 12        | 19.25                    | 19.40                       | 19.36                     | 19.5                   | 1.5         |
| 5               | 64QAM      | 1       | 24        | 19.43                    | 19.35                       | 19.47                     |                        |             |
| 5               | 64QAM      | 12      | 0         | 18.15                    | 18.19                       | 18.25                     |                        |             |
| 5               | 64QAM      | 12      | 7         | 18.27                    | 18.21                       | 18.28                     | 18.5                   | 2.5         |
| 5               | 64QAM      | 12      | 13        | 18.25                    | 18.22                       | 18.27                     |                        |             |
| 5               | 64QAM      | 25      | 0         | 18.21                    | 18.21                       | 18.22                     |                        |             |



# FCC SAR TEST REPORT

Report No. : FA041658-01A

|   |        |    |    |       |       |       |    |   |
|---|--------|----|----|-------|-------|-------|----|---|
| 5 | 256QAM | 1  | 0  | 16.14 | 16.09 | 16.19 | 17 | 4 |
| 5 | 256QAM | 1  | 12 | 16.15 | 16.11 | 16.12 |    |   |
| 5 | 256QAM | 1  | 24 | 16.12 | 16.10 | 16.10 |    |   |
| 5 | 256QAM | 12 | 0  | 16.09 | 16.05 | 16.01 | 17 | 4 |
| 5 | 256QAM | 12 | 7  | 16.13 | 16.14 | 16.15 |    |   |
| 5 | 256QAM | 12 | 13 | 16.14 | 16.09 | 16.14 |    |   |
| 5 | 256QAM | 25 | 0  | 16.10 | 16.13 | 16.13 |    |   |

**<LTE Band 66>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 132072                   | 132322                      | 132572                    | 17.7                   | 0           |
| Frequency (MHz) |            |         |           | 1720                     | 1745                        | 1770                      |                        |             |
| 20              | QPSK       | 1       | 0         | 16.78                    | 16.69                       | 16.60                     |                        |             |
| 20              | QPSK       | 1       | 49        | 16.64                    | 16.60                       | 16.48                     | 17.7                   | 0           |
| 20              | QPSK       | 1       | 99        | 16.53                    | 16.50                       | 16.32                     |                        |             |
| 20              | QPSK       | 50      | 0         | 16.81                    | 16.67                       | 16.61                     |                        |             |
| 20              | QPSK       | 50      | 24        | 16.83                    | 16.68                       | 16.68                     | 17.7                   | 0           |
| 20              | QPSK       | 50      | 50        | 16.70                    | 16.61                       | 16.56                     |                        |             |
| 20              | QPSK       | 100     | 0         | 16.72                    | 16.72                       | 16.72                     |                        |             |
| 20              | 16QAM      | 1       | 0         | 17.07                    | 16.92                       | 16.97                     | 17.7                   | 0           |
| 20              | 16QAM      | 1       | 49        | 17.04                    | 16.93                       | 16.81                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 16.94                    | 16.80                       | 16.73                     |                        |             |
| 20              | 16QAM      | 50      | 0         | 16.77                    | 16.67                       | 16.61                     | 17.7                   | 0           |
| 20              | 16QAM      | 50      | 24        | 16.80                    | 16.70                       | 16.64                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 16.79                    | 16.67                       | 16.59                     |                        |             |
| 20              | 16QAM      | 100     | 0         | 16.82                    | 16.66                       | 16.64                     | 17.7                   | 0           |
| 20              | 64QAM      | 1       | 0         | 16.97                    | 16.86                       | 16.78                     |                        |             |
| 20              | 64QAM      | 1       | 49        | 16.94                    | 16.70                       | 16.72                     |                        |             |
| 20              | 64QAM      | 1       | 99        | 16.81                    | 16.74                       | 16.62                     | 17.7                   | 0           |
| 20              | 64QAM      | 50      | 0         | 16.76                    | 16.69                       | 16.63                     |                        |             |
| 20              | 64QAM      | 50      | 24        | 16.87                    | 16.67                       | 16.66                     |                        |             |
| 20              | 64QAM      | 50      | 50        | 16.74                    | 16.67                       | 16.54                     | 17.7                   | 0           |
| 20              | 64QAM      | 100     | 0         | 16.78                    | 16.66                       | 16.61                     |                        |             |
| 20              | 256QAM     | 1       | 0         | 16.58                    | 16.42                       | 16.39                     |                        |             |
| 20              | 256QAM     | 1       | 49        | 16.49                    | 16.39                       | 16.32                     | 17.7                   | 0           |
| 20              | 256QAM     | 1       | 99        | 16.64                    | 16.47                       | 16.37                     |                        |             |
| 20              | 256QAM     | 50      | 0         | 16.58                    | 16.41                       | 16.39                     |                        |             |
| 20              | 256QAM     | 50      | 24        | 16.62                    | 16.45                       | 16.35                     | 17.7                   | 0           |
| 20              | 256QAM     | 50      | 50        | 16.58                    | 16.44                       | 16.34                     |                        |             |
| 20              | 256QAM     | 100     | 0         | 16.52                    | 16.42                       | 16.32                     |                        |             |
| Channel         |            |         |           | 132047                   | 132322                      | 132597                    | 17.7                   | 0           |
| Frequency (MHz) |            |         |           | 1717.5                   | 1745                        | 1772.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 16.73                    | 16.66                       | 16.54                     |                        |             |
| 15              | QPSK       | 1       | 37        | 16.66                    | 16.54                       | 16.51                     | 17.7                   | 0           |
| 15              | QPSK       | 1       | 74        | 16.58                    | 16.50                       | 16.35                     |                        |             |
| 15              | QPSK       | 36      | 0         | 16.81                    | 16.63                       | 16.66                     |                        |             |
| 15              | QPSK       | 36      | 20        | 16.79                    | 16.68                       | 16.72                     | 17.7                   | 0           |
| 15              | QPSK       | 36      | 39        | 16.74                    | 16.67                       | 16.54                     |                        |             |
| 15              | QPSK       | 75      | 0         | 16.71                    | 16.66                       | 16.72                     |                        |             |
| 15              | 16QAM      | 1       | 0         | 17.05                    | 16.97                       | 16.99                     | 17.7                   | 0           |
| 15              | 16QAM      | 1       | 37        | 17.06                    | 16.88                       | 16.79                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 16.95                    | 16.77                       | 16.70                     |                        |             |
| 15              | 16QAM      | 36      | 0         | 16.83                    | 16.69                       | 16.60                     | 17.7                   | 0           |
| 15              | 16QAM      | 36      | 20        | 16.90                    | 16.72                       | 16.68                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 16.76                    | 16.63                       | 16.58                     |                        |             |
| 15              | 16QAM      | 75      | 0         | 16.81                    | 16.75                       | 16.72                     | 17.7                   | 0           |
| 15              | 64QAM      | 1       | 0         | 16.99                    | 16.81                       | 16.83                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 16.84                    | 16.76                       | 16.78                     |                        |             |
| 15              | 64QAM      | 1       | 74        | 16.75                    | 16.73                       | 16.60                     | 17.7                   | 0           |
| 15              | 64QAM      | 36      | 0         | 16.80                    | 16.70                       | 16.63                     |                        |             |
| 15              | 64QAM      | 36      | 20        | 16.83                    | 16.77                       | 16.66                     |                        |             |
| 15              | 64QAM      | 36      | 39        | 16.70                    | 16.65                       | 16.58                     | 17.7                   | 0           |
| 15              | 64QAM      | 75      | 0         | 16.76                    | 16.72                       | 16.70                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 16.76                    | 16.72                       | 16.70                     |                        |             |



# FCC SAR TEST REPORT

Report No. : FA041658-01A

|                 |        |    |    |        |        |        |                     |          |
|-----------------|--------|----|----|--------|--------|--------|---------------------|----------|
| 15              | 256QAM | 1  | 0  | 16.51  | 16.35  | 16.39  | 17.7                | 0        |
| 15              | 256QAM | 1  | 37 | 16.41  | 16.32  | 16.22  |                     |          |
| 15              | 256QAM | 1  | 74 | 16.61  | 16.47  | 16.34  |                     |          |
| 15              | 256QAM | 36 | 0  | 16.49  | 16.33  | 16.36  | 17.7                | 0        |
| 15              | 256QAM | 36 | 20 | 16.58  | 16.39  | 16.31  |                     |          |
| 15              | 256QAM | 36 | 39 | 16.51  | 16.41  | 16.24  |                     |          |
| 15              | 256QAM | 75 | 0  | 16.48  | 16.41  | 16.28  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 132022 | 132322 | 132622 |                     |          |
| Frequency (MHz) |        |    |    | 1715   | 1745   | 1775   |                     |          |
| 10              | QPSK   | 1  | 0  | 16.76  | 16.60  | 16.56  | 17.7                | 0        |
| 10              | QPSK   | 1  | 25 | 16.72  | 16.51  | 16.51  |                     |          |
| 10              | QPSK   | 1  | 49 | 16.51  | 16.48  | 16.32  |                     |          |
| 10              | QPSK   | 25 | 0  | 16.76  | 16.63  | 16.61  | 17.7                | 0        |
| 10              | QPSK   | 25 | 12 | 16.83  | 16.72  | 16.71  |                     |          |
| 10              | QPSK   | 25 | 25 | 16.73  | 16.59  | 16.51  |                     |          |
| 10              | QPSK   | 50 | 0  | 16.74  | 16.69  | 16.65  | 17.7                | 0        |
| 10              | 16QAM  | 1  | 0  | 17.06  | 16.98  | 16.92  |                     |          |
| 10              | 16QAM  | 1  | 25 | 17.00  | 16.93  | 16.78  |                     |          |
| 10              | 16QAM  | 1  | 49 | 16.93  | 16.81  | 16.66  | 17.7                | 0        |
| 10              | 16QAM  | 25 | 0  | 16.74  | 16.66  | 16.67  |                     |          |
| 10              | 16QAM  | 25 | 12 | 16.85  | 16.67  | 16.71  |                     |          |
| 10              | 16QAM  | 25 | 25 | 16.73  | 16.70  | 16.61  | 17.7                | 0        |
| 10              | 16QAM  | 50 | 0  | 16.77  | 16.70  | 16.68  |                     |          |
| 10              | 64QAM  | 1  | 0  | 16.92  | 16.83  | 16.81  |                     |          |
| 10              | 64QAM  | 1  | 25 | 16.91  | 16.76  | 16.74  | 17.7                | 0        |
| 10              | 64QAM  | 1  | 49 | 16.77  | 16.67  | 16.67  |                     |          |
| 10              | 64QAM  | 25 | 0  | 16.75  | 16.70  | 16.61  |                     |          |
| 10              | 64QAM  | 25 | 12 | 16.77  | 16.77  | 16.72  | 17.7                | 0        |
| 10              | 64QAM  | 25 | 25 | 16.78  | 16.65  | 16.60  |                     |          |
| 10              | 64QAM  | 50 | 0  | 16.83  | 16.71  | 16.67  |                     |          |
| 10              | 256QAM | 1  | 0  | 16.50  | 16.33  | 16.33  | 17.7                | 0        |
| 10              | 256QAM | 1  | 25 | 16.45  | 16.32  | 16.27  |                     |          |
| 10              | 256QAM | 1  | 49 | 16.55  | 16.47  | 16.29  |                     |          |
| 10              | 256QAM | 25 | 0  | 16.50  | 16.41  | 16.31  | 17.7                | 0        |
| 10              | 256QAM | 25 | 12 | 16.57  | 16.36  | 16.29  |                     |          |
| 10              | 256QAM | 25 | 25 | 16.51  | 16.37  | 16.33  |                     |          |
| 10              | 256QAM | 50 | 0  | 16.50  | 16.36  | 16.31  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 131997 | 132322 | 132647 |                     |          |
| Frequency (MHz) |        |    |    | 1712.5 | 1745   | 1777.5 |                     |          |
| 5               | QPSK   | 1  | 0  | 16.71  | 16.70  | 16.56  | 17.7                | 0        |
| 5               | QPSK   | 1  | 12 | 16.72  | 16.51  | 16.51  |                     |          |
| 5               | QPSK   | 1  | 24 | 16.56  | 16.46  | 16.32  |                     |          |
| 5               | QPSK   | 12 | 0  | 16.81  | 16.64  | 16.59  | 17.7                | 0        |
| 5               | QPSK   | 12 | 7  | 16.77  | 16.66  | 16.66  |                     |          |
| 5               | QPSK   | 12 | 13 | 16.74  | 16.60  | 16.60  |                     |          |
| 5               | QPSK   | 25 | 0  | 16.78  | 16.64  | 16.69  | 17.7                | 0        |
| 5               | 16QAM  | 1  | 0  | 17.02  | 16.94  | 16.95  |                     |          |
| 5               | 16QAM  | 1  | 12 | 17.02  | 16.96  | 16.86  |                     |          |
| 5               | 16QAM  | 1  | 24 | 16.90  | 16.77  | 16.70  | 17.7                | 0        |
| 5               | 16QAM  | 12 | 0  | 16.81  | 16.72  | 16.63  |                     |          |
| 5               | 16QAM  | 12 | 7  | 16.83  | 16.67  | 16.72  |                     |          |
| 5               | 16QAM  | 12 | 13 | 16.76  | 16.66  | 16.61  | 17.7                | 0        |
| 5               | 16QAM  | 25 | 0  | 16.76  | 16.65  | 16.65  |                     |          |
| 5               | 64QAM  | 1  | 0  | 16.93  | 16.90  | 16.76  |                     |          |
| 5               | 64QAM  | 1  | 12 | 16.91  | 16.72  | 16.70  | 17.7                | 0        |
| 5               | 64QAM  | 1  | 24 | 16.80  | 16.70  | 16.66  |                     |          |

|                 |        |    |    |        |        |        |                        |             |
|-----------------|--------|----|----|--------|--------|--------|------------------------|-------------|
| 5               | 64QAM  | 12 | 0  | 16.73  | 16.71  | 16.64  | 17.7                   | 0           |
| 5               | 64QAM  | 12 | 7  | 16.84  | 16.71  | 16.64  |                        |             |
| 5               | 64QAM  | 12 | 13 | 16.71  | 16.67  | 16.64  |                        |             |
| 5               | 64QAM  | 25 | 0  | 16.84  | 16.69  | 16.64  |                        |             |
| 5               | 256QAM | 1  | 0  | 16.57  | 16.34  | 16.29  | 17.7                   | 0           |
| 5               | 256QAM | 1  | 12 | 16.43  | 16.37  | 16.24  |                        |             |
| 5               | 256QAM | 1  | 24 | 16.57  | 16.43  | 16.34  |                        |             |
| 5               | 256QAM | 12 | 0  | 16.58  | 16.38  | 16.30  | 17.7                   | 0           |
| 5               | 256QAM | 12 | 7  | 16.53  | 16.41  | 16.28  |                        |             |
| 5               | 256QAM | 12 | 13 | 16.56  | 16.37  | 16.28  |                        |             |
| 5               | 256QAM | 25 | 0  | 16.51  | 16.38  | 16.28  |                        |             |
| Channel         |        |    |    | 131987 | 132322 | 132657 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |        |    |    | 1711.5 | 1745   | 1778.5 |                        |             |
| 3               | QPSK   | 1  | 0  | 16.69  | 16.70  | 16.57  | 17.7                   | 0           |
| 3               | QPSK   | 1  | 8  | 16.72  | 16.56  | 16.51  |                        |             |
| 3               | QPSK   | 1  | 14 | 16.51  | 16.46  | 16.35  |                        |             |
| 3               | QPSK   | 8  | 0  | 16.72  | 16.72  | 16.65  | 17.7                   | 0           |
| 3               | QPSK   | 8  | 4  | 16.81  | 16.73  | 16.70  |                        |             |
| 3               | QPSK   | 8  | 7  | 16.78  | 16.58  | 16.54  |                        |             |
| 3               | QPSK   | 15 | 0  | 16.74  | 16.63  | 16.63  |                        |             |
| 3               | 16QAM  | 1  | 0  | 17.03  | 17.01  | 16.98  | 17.7                   | 0           |
| 3               | 16QAM  | 1  | 8  | 17.04  | 16.94  | 16.78  |                        |             |
| 3               | 16QAM  | 1  | 14 | 16.97  | 16.79  | 16.71  |                        |             |
| 3               | 16QAM  | 8  | 0  | 16.83  | 16.73  | 16.63  | 17.7                   | 0           |
| 3               | 16QAM  | 8  | 4  | 16.82  | 16.75  | 16.66  |                        |             |
| 3               | 16QAM  | 8  | 7  | 16.81  | 16.70  | 16.60  |                        |             |
| 3               | 16QAM  | 15 | 0  | 16.82  | 16.68  | 16.64  |                        |             |
| 3               | 64QAM  | 1  | 0  | 16.93  | 16.82  | 16.81  | 17.7                   | 0           |
| 3               | 64QAM  | 1  | 8  | 16.88  | 16.72  | 16.72  |                        |             |
| 3               | 64QAM  | 1  | 14 | 16.83  | 16.65  | 16.57  |                        |             |
| 3               | 64QAM  | 8  | 0  | 16.72  | 16.63  | 16.65  | 17.7                   | 0           |
| 3               | 64QAM  | 8  | 4  | 16.84  | 16.76  | 16.67  |                        |             |
| 3               | 64QAM  | 8  | 7  | 16.77  | 16.62  | 16.64  |                        |             |
| 3               | 64QAM  | 15 | 0  | 16.79  | 16.70  | 16.69  |                        |             |
| 3               | 256QAM | 1  | 0  | 16.49  | 16.34  | 16.38  | 17.7                   | 0           |
| 3               | 256QAM | 1  | 8  | 16.47  | 16.29  | 16.32  |                        |             |
| 3               | 256QAM | 1  | 14 | 16.59  | 16.39  | 16.37  |                        |             |
| 3               | 256QAM | 8  | 0  | 16.51  | 16.37  | 16.29  | 17.7                   | 0           |
| 3               | 256QAM | 8  | 4  | 16.58  | 16.41  | 16.30  |                        |             |
| 3               | 256QAM | 8  | 7  | 16.48  | 16.40  | 16.33  |                        |             |
| 3               | 256QAM | 15 | 0  | 16.44  | 16.39  | 16.29  |                        |             |
| Channel         |        |    |    | 131979 | 132322 | 132665 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |        |    |    | 1710.7 | 1745   | 1779.3 |                        |             |
| 1.4             | QPSK   | 1  | 0  | 16.76  | 16.63  | 16.63  | 17.7                   | 0           |
| 1.4             | QPSK   | 1  | 3  | 16.62  | 16.56  | 16.52  |                        |             |
| 1.4             | QPSK   | 1  | 5  | 16.59  | 16.45  | 16.36  |                        |             |
| 1.4             | QPSK   | 3  | 0  | 16.71  | 16.65  | 16.60  |                        |             |
| 1.4             | QPSK   | 3  | 1  | 16.76  | 16.73  | 16.67  |                        |             |
| 1.4             | QPSK   | 3  | 3  | 16.75  | 16.62  | 16.53  |                        |             |
| 1.4             | QPSK   | 6  | 0  | 16.80  | 16.68  | 16.65  | 17.7                   | 0           |
| 1.4             | 16QAM  | 1  | 0  | 17.02  | 16.99  | 16.94  | 17.7                   | 0           |
| 1.4             | 16QAM  | 1  | 3  | 16.97  | 16.95  | 16.77  |                        |             |
| 1.4             | 16QAM  | 1  | 5  | 16.91  | 16.80  | 16.68  |                        |             |
| 1.4             | 16QAM  | 3  | 0  | 16.75  | 16.67  | 16.67  |                        |             |
| 1.4             | 16QAM  | 3  | 1  | 16.90  | 16.68  | 16.70  |                        |             |
| 1.4             | 16QAM  | 3  | 3  | 16.71  | 16.66  | 16.63  |                        |             |



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|     |        |   |   |       |       |       |      |   |
|-----|--------|---|---|-------|-------|-------|------|---|
| 1.4 | 16QAM  | 6 | 0 | 16.80 | 16.74 | 16.69 | 17.7 | 0 |
| 1.4 | 64QAM  | 1 | 0 | 16.98 | 16.82 | 16.85 | 17.7 | 0 |
| 1.4 | 64QAM  | 1 | 3 | 16.90 | 16.76 | 16.70 |      |   |
| 1.4 | 64QAM  | 1 | 5 | 16.82 | 16.69 | 16.57 |      |   |
| 1.4 | 64QAM  | 3 | 0 | 16.80 | 16.73 | 16.68 |      |   |
| 1.4 | 64QAM  | 3 | 1 | 16.87 | 16.67 | 16.69 |      |   |
| 1.4 | 64QAM  | 3 | 3 | 16.74 | 16.61 | 16.62 |      |   |
| 1.4 | 64QAM  | 6 | 0 | 16.82 | 16.70 | 16.61 | 17.7 | 0 |
| 1.4 | 256QAM | 1 | 0 | 16.50 | 16.40 | 16.37 | 17.7 | 0 |
| 1.4 | 256QAM | 1 | 3 | 16.40 | 16.32 | 16.31 |      |   |
| 1.4 | 256QAM | 1 | 5 | 16.60 | 16.45 | 16.28 |      |   |
| 1.4 | 256QAM | 3 | 0 | 16.51 | 16.32 | 16.38 |      |   |
| 1.4 | 256QAM | 3 | 1 | 16.57 | 16.42 | 16.29 |      |   |
| 1.4 | 256QAM | 3 | 3 | 16.57 | 16.43 | 16.33 |      |   |
| 1.4 | 256QAM | 6 | 0 | 16.43 | 16.41 | 16.27 | 17.7 | 0 |



**<LTE Band 71>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 133222                | 133322                   | 133372                 |                     |          |
| Frequency (MHz) |            |         |           | 673                   | 683                      | 688                    |                     |          |
| 20              | QPSK       | 1       | 0         | 23.99                 | 23.77                    | 23.72                  |                     |          |
| 20              | QPSK       | 1       | 49        | 23.80                 | 23.72                    | 23.76                  | 24                  | 0        |
| 20              | QPSK       | 1       | 99        | 23.73                 | 23.75                    | 23.72                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.93                 | 22.84                    | 22.83                  |                     |          |
| 20              | QPSK       | 50      | 24        | 22.96                 | 22.90                    | 22.86                  | 23                  | 1        |
| 20              | QPSK       | 50      | 50        | 22.93                 | 22.88                    | 22.87                  |                     |          |
| 20              | QPSK       | 100     | 0         | 22.92                 | 22.90                    | 22.90                  |                     |          |
| 20              | 16QAM      | 1       | 0         | 22.98                 | 22.82                    | 22.79                  | 23                  | 1        |
| 20              | 16QAM      | 1       | 49        | 22.83                 | 22.79                    | 22.81                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 22.76                 | 22.87                    | 22.76                  |                     |          |
| 20              | 16QAM      | 50      | 0         | 21.94                 | 21.83                    | 21.85                  | 22                  | 2        |
| 20              | 16QAM      | 50      | 24        | 21.96                 | 21.93                    | 21.84                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 21.93                 | 21.94                    | 21.89                  |                     |          |
| 20              | 16QAM      | 100     | 0         | 21.93                 | 21.90                    | 21.90                  | 22                  | 2        |
| 20              | 64QAM      | 1       | 0         | 21.99                 | 21.94                    | 21.94                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 21.93                 | 21.98                    | 21.97                  |                     |          |
| 20              | 64QAM      | 1       | 99        | 21.99                 | 21.94                    | 21.96                  | 21                  | 3        |
| 20              | 64QAM      | 50      | 0         | 20.97                 | 20.87                    | 20.86                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 20.98                 | 20.93                    | 20.87                  |                     |          |
| 20              | 64QAM      | 50      | 50        | 20.95                 | 20.96                    | 20.91                  | 19                  | 5        |
| 20              | 64QAM      | 100     | 0         | 20.98                 | 20.93                    | 20.93                  |                     |          |
| 20              | 256QAM     | 1       | 0         | 18.99                 | 19.00                    | 18.98                  |                     |          |
| 20              | 256QAM     | 1       | 49        | 19.00                 | 18.95                    | 19.00                  | 19                  | 5        |
| 20              | 256QAM     | 1       | 99        | 19.00                 | 18.96                    | 19.00                  |                     |          |
| 20              | 256QAM     | 50      | 0         | 19.00                 | 19.00                    | 18.95                  |                     |          |
| 20              | 256QAM     | 50      | 24        | 18.92                 | 18.96                    | 18.99                  | 19                  | 5        |
| 20              | 256QAM     | 50      | 50        | 19.00                 | 18.98                    | 18.92                  |                     |          |
| 20              | 256QAM     | 100     | 0         | 18.93                 | 18.94                    | 19.00                  |                     |          |
| Channel         |            |         |           | 133197                | 133297                   | 133397                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 670.5                 | 680.5                    | 690.5                  |                     |          |
| 15              | QPSK       | 1       | 0         | 23.94                 | 23.98                    | 23.95                  |                     |          |
| 15              | QPSK       | 1       | 37        | 23.98                 | 23.96                    | 23.98                  | 24                  | 0        |
| 15              | QPSK       | 1       | 74        | 23.95                 | 23.91                    | 23.98                  |                     |          |
| 15              | QPSK       | 36      | 0         | 22.63                 | 22.54                    | 22.54                  | 23                  | 1        |
| 15              | QPSK       | 36      | 20        | 22.63                 | 22.62                    | 22.53                  |                     |          |
| 15              | QPSK       | 36      | 39        | 22.56                 | 22.59                    | 22.59                  |                     |          |
| 15              | QPSK       | 75      | 0         | 22.67                 | 22.61                    | 22.53                  | 23                  | 1        |
| 15              | 16QAM      | 1       | 0         | 23.00                 | 22.81                    | 22.78                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 22.87                 | 22.79                    | 22.83                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 22.76                 | 22.80                    | 22.82                  | 22                  | 2        |
| 15              | 16QAM      | 36      | 0         | 21.65                 | 21.56                    | 21.54                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 21.65                 | 21.62                    | 21.54                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 21.60                 | 21.58                    | 21.61                  | 22                  | 2        |
| 15              | 16QAM      | 75      | 0         | 21.67                 | 21.61                    | 21.54                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 21.87                 | 21.68                    | 21.67                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 21.52                 | 21.70                    | 21.69                  | 21                  | 3        |
| 15              | 64QAM      | 1       | 74        | 21.67                 | 21.70                    | 21.72                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 20.61                 | 20.59                    | 20.58                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 20.68                 | 20.66                    | 20.55                  | 21                  | 3        |
| 15              | 64QAM      | 36      | 39        | 20.59                 | 20.62                    | 20.64                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 20.67                 | 20.63                    | 20.54                  |                     |          |



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Report No. : FA041658-01A

|                 |        |    |    |        |        |        |                     |          |
|-----------------|--------|----|----|--------|--------|--------|---------------------|----------|
| 15              | 256QAM | 1  | 0  | 18.99  | 18.95  | 18.96  | 19                  | 5        |
| 15              | 256QAM | 1  | 37 | 18.91  | 18.95  | 18.97  |                     |          |
| 15              | 256QAM | 1  | 74 | 18.94  | 18.99  | 18.93  |                     |          |
| 15              | 256QAM | 36 | 0  | 18.98  | 18.96  | 18.96  | 19                  | 5        |
| 15              | 256QAM | 36 | 20 | 18.97  | 19.00  | 18.97  |                     |          |
| 15              | 256QAM | 36 | 39 | 18.97  | 18.95  | 18.86  |                     |          |
| 15              | 256QAM | 75 | 0  | 18.94  | 19.00  | 18.92  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 133172 | 133272 | 133422 |                     |          |
| Frequency (MHz) |        |    |    | 668    | 678    | 693    |                     |          |
| 10              | QPSK   | 1  | 0  | 23.94  | 23.92  | 23.89  | 24                  | 0        |
| 10              | QPSK   | 1  | 25 | 23.92  | 23.92  | 23.96  |                     |          |
| 10              | QPSK   | 1  | 49 | 23.95  | 23.88  | 23.96  |                     |          |
| 10              | QPSK   | 25 | 0  | 22.61  | 22.52  | 22.53  | 23                  | 1        |
| 10              | QPSK   | 25 | 12 | 22.56  | 22.61  | 22.49  |                     |          |
| 10              | QPSK   | 25 | 25 | 22.54  | 22.54  | 22.49  |                     |          |
| 10              | QPSK   | 50 | 0  | 22.57  | 22.58  | 22.51  | 23                  | 1        |
| 10              | 16QAM  | 1  | 0  | 22.96  | 22.76  | 22.74  |                     |          |
| 10              | 16QAM  | 1  | 25 | 22.83  | 22.71  | 22.82  |                     |          |
| 10              | 16QAM  | 1  | 49 | 22.75  | 22.74  | 22.78  | 22                  | 2        |
| 10              | 16QAM  | 25 | 0  | 21.60  | 21.53  | 21.50  |                     |          |
| 10              | 16QAM  | 25 | 12 | 21.57  | 21.57  | 21.52  |                     |          |
| 10              | 16QAM  | 25 | 25 | 21.53  | 21.48  | 21.54  | 22                  | 2        |
| 10              | 16QAM  | 50 | 0  | 21.61  | 21.51  | 21.46  |                     |          |
| 10              | 64QAM  | 1  | 0  | 21.80  | 21.66  | 21.64  |                     |          |
| 10              | 64QAM  | 1  | 25 | 21.45  | 21.70  | 21.69  | 21                  | 3        |
| 10              | 64QAM  | 1  | 49 | 21.61  | 21.67  | 21.71  |                     |          |
| 10              | 64QAM  | 25 | 0  | 20.51  | 20.52  | 20.56  |                     |          |
| 10              | 64QAM  | 25 | 12 | 20.59  | 20.62  | 20.55  | 19                  | 5        |
| 10              | 64QAM  | 25 | 25 | 20.51  | 20.61  | 20.59  |                     |          |
| 10              | 64QAM  | 50 | 0  | 20.59  | 20.54  | 20.47  |                     |          |
| 10              | 256QAM | 1  | 0  | 18.93  | 18.90  | 18.89  | 19                  | 5        |
| 10              | 256QAM | 1  | 25 | 18.91  | 18.96  | 18.94  |                     |          |
| 10              | 256QAM | 1  | 49 | 18.98  | 19.00  | 18.96  |                     |          |
| 10              | 256QAM | 25 | 0  | 18.96  | 18.91  | 19.00  | 19                  | 5        |
| 10              | 256QAM | 25 | 12 | 18.92  | 18.97  | 18.92  |                     |          |
| 10              | 256QAM | 25 | 25 | 18.97  | 18.97  | 18.90  |                     |          |
| 10              | 256QAM | 50 | 0  | 18.97  | 19.00  | 18.97  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 133147 | 133247 | 133447 |                     |          |
| Frequency (MHz) |        |    |    | 665.5  | 675.5  | 695.5  |                     |          |
| 5               | QPSK   | 1  | 0  | 23.89  | 23.88  | 23.88  | 24                  | 0        |
| 5               | QPSK   | 1  | 12 | 23.93  | 23.90  | 23.98  |                     |          |
| 5               | QPSK   | 1  | 24 | 23.92  | 23.81  | 23.90  |                     |          |
| 5               | QPSK   | 12 | 0  | 22.57  | 22.48  | 22.48  | 23                  | 1        |
| 5               | QPSK   | 12 | 7  | 22.53  | 22.56  | 22.46  |                     |          |
| 5               | QPSK   | 12 | 13 | 22.47  | 22.55  | 22.59  |                     |          |
| 5               | QPSK   | 25 | 0  | 22.61  | 22.51  | 22.45  | 23                  | 1        |
| 5               | 16QAM  | 1  | 0  | 22.94  | 22.74  | 22.69  |                     |          |
| 5               | 16QAM  | 1  | 12 | 22.79  | 22.72  | 22.81  |                     |          |
| 5               | 16QAM  | 1  | 24 | 22.72  | 22.79  | 22.73  | 22                  | 2        |
| 5               | 16QAM  | 12 | 0  | 21.63  | 21.49  | 21.44  |                     |          |
| 5               | 16QAM  | 12 | 7  | 21.63  | 21.53  | 21.51  |                     |          |
| 5               | 16QAM  | 12 | 13 | 21.52  | 21.56  | 21.57  | 22                  | 2        |
| 5               | 16QAM  | 25 | 0  | 21.64  | 21.57  | 21.44  |                     |          |
| 5               | 64QAM  | 1  | 0  | 21.87  | 21.58  | 21.57  |                     |          |
| 5               | 64QAM  | 1  | 12 | 21.51  | 21.70  | 21.62  | 22                  | 2        |
| 5               | 64QAM  | 1  | 24 | 21.63  | 21.64  | 21.63  |                     |          |



|   |        |    |    |       |       |       |    |   |
|---|--------|----|----|-------|-------|-------|----|---|
| 5 | 64QAM  | 12 | 0  | 20.56 | 20.49 | 20.55 | 21 | 3 |
| 5 | 64QAM  | 12 | 7  | 20.68 | 20.65 | 20.50 |    |   |
| 5 | 64QAM  | 12 | 13 | 20.55 | 20.59 | 20.59 |    |   |
| 5 | 64QAM  | 25 | 0  | 20.65 | 20.61 | 20.44 |    |   |
| 5 | 256QAM | 1  | 0  | 18.97 | 19.00 | 18.96 | 19 | 5 |
| 5 | 256QAM | 1  | 12 | 18.94 | 19.00 | 18.99 |    |   |
| 5 | 256QAM | 1  | 24 | 18.97 | 18.98 | 18.92 |    |   |
| 5 | 256QAM | 12 | 0  | 18.94 | 18.92 | 19.00 | 19 | 5 |
| 5 | 256QAM | 12 | 7  | 19.00 | 18.99 | 18.97 |    |   |
| 5 | 256QAM | 12 | 13 | 18.99 | 18.89 | 18.90 |    |   |
| 5 | 256QAM | 25 | 0  | 18.99 | 19.00 | 18.97 |    |   |

**Ant 8**
**<LTE Band 2>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 18700                    | 18900                       | 19100                     |                        |             |
| Frequency (MHz) |            |         |           | 1860                     | 1880                        | 1900                      |                        |             |
| 20              | QPSK       | 1       | 0         | 21.25                    | 21.18                       | 21.12                     | 22.3                   | 0           |
| 20              | QPSK       | 1       | 49        | 21.14                    | 21.17                       | 21.21                     |                        |             |
| 20              | QPSK       | 1       | 99        | 21.29                    | 21.19                       | 21.22                     |                        |             |
| 20              | QPSK       | 50      | 0         | 21.36                    | 21.21                       | 21.32                     | 22.3                   | 0           |
| 20              | QPSK       | 50      | 24        | 21.34                    | 21.29                       | 21.37                     |                        |             |
| 20              | QPSK       | 50      | 50        | 21.40                    | 21.30                       | 21.39                     |                        |             |
| 20              | QPSK       | 100     | 0         | 21.37                    | 21.34                       | 21.26                     | 22.3                   | 0           |
| 20              | 16QAM      | 1       | 0         | 21.86                    | 21.44                       | 21.66                     |                        |             |
| 20              | 16QAM      | 1       | 49        | 21.68                    | 21.63                       | 21.68                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 21.51                    | 21.76                       | 21.52                     | 22.3                   | 0           |
| 20              | 16QAM      | 50      | 0         | 21.26                    | 21.05                       | 21.30                     |                        |             |
| 20              | 16QAM      | 50      | 24        | 21.35                    | 21.23                       | 21.26                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 21.30                    | 21.14                       | 21.29                     | 22.3                   | 0           |
| 20              | 16QAM      | 100     | 0         | 21.53                    | 21.32                       | 21.31                     |                        |             |
| 20              | 64QAM      | 1       | 0         | 21.02                    | 21.19                       | 21.15                     |                        |             |
| 20              | 64QAM      | 1       | 49        | 21.10                    | 21.16                       | 21.20                     | 22.3                   | 0           |
| 20              | 64QAM      | 1       | 99        | 21.22                    | 21.15                       | 21.31                     |                        |             |
| 20              | 64QAM      | 50      | 0         | 20.70                    | 20.56                       | 20.66                     | 21.8                   | 0.5         |
| 20              | 64QAM      | 50      | 24        | 20.75                    | 20.67                       | 20.76                     |                        |             |
| 20              | 64QAM      | 50      | 50        | 20.71                    | 20.63                       | 20.75                     |                        |             |
| 20              | 64QAM      | 100     | 0         | 20.81                    | 20.69                       | 20.69                     | 20.3                   | 2           |
| 20              | 256QAM     | 1       | 0         | 19.12                    | 18.96                       | 19.08                     |                        |             |
| 20              | 256QAM     | 1       | 49        | 19.06                    | 18.99                       | 19.07                     |                        |             |
| 20              | 256QAM     | 1       | 99        | 19.07                    | 19.16                       | 19.15                     | 19.8                   | 2.5         |
| 20              | 256QAM     | 50      | 0         | 18.76                    | 18.57                       | 18.79                     |                        |             |
| 20              | 256QAM     | 50      | 24        | 18.78                    | 18.64                       | 18.75                     |                        |             |
| 20              | 256QAM     | 50      | 50        | 18.80                    | 18.62                       | 18.78                     | 18.70                  | 18.77       |
| 20              | 256QAM     | 100     | 0         | 18.70                    | 18.75                       | 18.77                     |                        |             |
| Channel         |            |         |           | 18675                    | 18900                       | 19125                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1857.5                   | 1880                        | 1902.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 21.25                    | 21.18                       | 21.04                     | 22.3                   | 0           |
| 15              | QPSK       | 1       | 37        | 21.07                    | 21.19                       | 21.15                     |                        |             |
| 15              | QPSK       | 1       | 74        | 21.22                    | 21.07                       | 21.17                     |                        |             |
| 15              | QPSK       | 36      | 0         | 21.27                    | 21.19                       | 21.26                     | 22.3                   | 0           |
| 15              | QPSK       | 36      | 20        | 21.30                    | 21.22                       | 21.30                     |                        |             |
| 15              | QPSK       | 36      | 39        | 21.37                    | 21.19                       | 21.38                     |                        |             |
| 15              | QPSK       | 75      | 0         | 21.29                    | 21.28                       | 21.18                     | 22.3                   | 0           |
| 15              | 16QAM      | 1       | 0         | 21.85                    | 21.37                       | 21.61                     |                        |             |
| 15              | 16QAM      | 1       | 37        | 21.59                    | 21.63                       | 21.62                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 21.46                    | 21.74                       | 21.52                     | 22.3                   | 0           |
| 15              | 16QAM      | 36      | 0         | 21.21                    | 20.96                       | 21.29                     |                        |             |
| 15              | 16QAM      | 36      | 20        | 21.25                    | 21.23                       | 21.25                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 21.23                    | 21.06                       | 21.20                     | 22.3                   | 0           |
| 15              | 16QAM      | 75      | 0         | 21.44                    | 21.22                       | 21.23                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 21.01                    | 21.10                       | 21.08                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 21.10                    | 21.07                       | 21.10                     | 22.3                   | 0           |
| 15              | 64QAM      | 1       | 74        | 21.16                    | 21.07                       | 21.22                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 20.69                    | 20.47                       | 20.65                     |                        |             |
| 15              | 64QAM      | 36      | 20        | 20.69                    | 20.57                       | 20.70                     | 21.8                   | 0.5         |



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|                 |        |    |    |        |       |        |                     |          |
|-----------------|--------|----|----|--------|-------|--------|---------------------|----------|
| 15              | 64QAM  | 36 | 39 | 20.70  | 20.56 | 20.73  | 20.3                | 2        |
| 15              | 64QAM  | 75 | 0  | 20.76  | 20.64 | 20.59  |                     |          |
| 15              | 256QAM | 1  | 0  | 19.07  | 18.96 | 19.06  |                     |          |
| 15              | 256QAM | 1  | 37 | 19.04  | 18.95 | 18.97  | 19.8                | 2.5      |
| 15              | 256QAM | 1  | 74 | 19.03  | 19.16 | 19.13  |                     |          |
| 15              | 256QAM | 36 | 0  | 18.71  | 18.57 | 18.76  |                     |          |
| 15              | 256QAM | 36 | 20 | 18.73  | 18.59 | 18.65  | Tune-up limit (dBm) | MPR (dB) |
| 15              | 256QAM | 36 | 39 | 18.76  | 18.59 | 18.70  |                     |          |
| 15              | 256QAM | 75 | 0  | 18.65  | 18.74 | 18.67  |                     |          |
| Channel         |        |    |    | 18650  | 18900 | 19150  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 1855   | 1880  | 1905   |                     |          |
| 10              | QPSK   | 1  | 0  | 21.23  | 21.19 | 21.02  | 22.3                | 0        |
| 10              | QPSK   | 1  | 25 | 21.05  | 21.15 | 21.17  |                     |          |
| 10              | QPSK   | 1  | 49 | 21.26  | 21.08 | 21.08  |                     |          |
| 10              | QPSK   | 25 | 0  | 21.28  | 21.14 | 21.30  | 22.3                | 0        |
| 10              | QPSK   | 25 | 12 | 21.28  | 21.28 | 21.31  |                     |          |
| 10              | QPSK   | 25 | 25 | 21.37  | 21.20 | 21.36  |                     |          |
| 10              | QPSK   | 50 | 0  | 21.37  | 21.25 | 21.18  | 22.3                | 0        |
| 10              | 16QAM  | 1  | 0  | 21.78  | 21.35 | 21.60  |                     |          |
| 10              | 16QAM  | 1  | 25 | 21.61  | 21.54 | 21.68  |                     |          |
| 10              | 16QAM  | 1  | 49 | 21.45  | 21.71 | 21.47  | 22.3                | 0        |
| 10              | 16QAM  | 25 | 0  | 21.21  | 21.02 | 21.23  |                     |          |
| 10              | 16QAM  | 25 | 12 | 21.31  | 21.17 | 21.26  |                     |          |
| 10              | 16QAM  | 25 | 25 | 21.28  | 21.09 | 21.24  | 22.3                | 0        |
| 10              | 16QAM  | 50 | 0  | 21.44  | 21.32 | 21.30  |                     |          |
| 10              | 64QAM  | 1  | 0  | 21.02  | 21.09 | 21.15  |                     |          |
| 10              | 64QAM  | 1  | 25 | 21.07  | 21.14 | 21.12  | 21.8                | 0.5      |
| 10              | 64QAM  | 1  | 49 | 21.13  | 21.08 | 21.23  |                     |          |
| 10              | 64QAM  | 25 | 0  | 20.65  | 20.50 | 20.58  |                     |          |
| 10              | 64QAM  | 25 | 12 | 20.74  | 20.64 | 20.74  | 20.3                | 2        |
| 10              | 64QAM  | 25 | 25 | 20.68  | 20.54 | 20.66  |                     |          |
| 10              | 64QAM  | 50 | 0  | 20.79  | 20.61 | 20.66  |                     |          |
| 10              | 256QAM | 1  | 0  | 19.05  | 18.89 | 19.00  | 19.8                | 2.5      |
| 10              | 256QAM | 1  | 25 | 18.98  | 18.99 | 19.04  |                     |          |
| 10              | 256QAM | 1  | 49 | 19.06  | 19.10 | 19.05  |                     |          |
| 10              | 256QAM | 25 | 0  | 18.76  | 18.50 | 18.70  | Tune-up limit (dBm) | MPR (dB) |
| 10              | 256QAM | 25 | 12 | 18.71  | 18.56 | 18.66  |                     |          |
| 10              | 256QAM | 25 | 25 | 18.76  | 18.52 | 18.76  |                     |          |
| 10              | 256QAM | 50 | 0  | 18.60  | 18.73 | 18.71  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 18625  | 18900 | 19175  |                     |          |
| Frequency (MHz) |        |    |    | 1852.5 | 1880  | 1907.5 | 22.3                | 0        |
| 5               | QPSK   | 1  | 0  | 21.25  | 21.13 | 21.07  |                     |          |
| 5               | QPSK   | 1  | 12 | 21.10  | 21.16 | 21.14  |                     |          |
| 5               | QPSK   | 1  | 24 | 21.27  | 21.11 | 21.14  | 22.3                | 0        |
| 5               | QPSK   | 12 | 0  | 21.31  | 21.15 | 21.24  |                     |          |
| 5               | QPSK   | 12 | 7  | 21.34  | 21.27 | 21.33  |                     |          |
| 5               | QPSK   | 12 | 13 | 21.34  | 21.27 | 21.42  | 22.3                | 0        |
| 5               | QPSK   | 25 | 0  | 21.30  | 21.32 | 21.19  |                     |          |
| 5               | 16QAM  | 1  | 0  | 21.77  | 21.34 | 21.58  |                     |          |
| 5               | 16QAM  | 1  | 12 | 21.63  | 21.58 | 21.67  | 22.3                | 0        |
| 5               | 16QAM  | 1  | 24 | 21.51  | 21.74 | 21.49  |                     |          |
| 5               | 16QAM  | 12 | 0  | 21.19  | 21.01 | 21.29  |                     |          |
| 5               | 16QAM  | 12 | 7  | 21.32  | 21.14 | 21.21  | 22.3                | 0        |
| 5               | 16QAM  | 12 | 13 | 21.28  | 21.14 | 21.20  |                     |          |
| 5               | 16QAM  | 25 | 0  | 21.51  | 21.31 | 21.25  |                     |          |
| 5               | 64QAM  | 1  | 0  | 20.96  | 21.13 | 21.13  | 22.3                | 0        |



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|                 |        |    |    |        |       |        |                     |          |
|-----------------|--------|----|----|--------|-------|--------|---------------------|----------|
| 5               | 64QAM  | 1  | 12 | 21.05  | 21.15 | 21.14  | 21.8                | 0.5      |
| 5               | 64QAM  | 1  | 24 | 21.18  | 21.08 | 21.21  |                     |          |
| 5               | 64QAM  | 12 | 0  | 20.63  | 20.55 | 20.64  |                     |          |
| 5               | 64QAM  | 12 | 7  | 20.72  | 20.61 | 20.70  |                     |          |
| 5               | 64QAM  | 12 | 13 | 20.63  | 20.58 | 20.74  |                     |          |
| 5               | 64QAM  | 25 | 0  | 20.73  | 20.67 | 20.69  | 20.3                | 2        |
| 5               | 256QAM | 1  | 0  | 19.02  | 18.94 | 19.01  |                     |          |
| 5               | 256QAM | 1  | 12 | 19.02  | 18.92 | 19.00  |                     |          |
| 5               | 256QAM | 1  | 24 | 18.97  | 19.10 | 19.10  | 19.8                | 2.5      |
| 5               | 256QAM | 12 | 0  | 18.73  | 18.47 | 18.79  |                     |          |
| 5               | 256QAM | 12 | 7  | 18.78  | 18.60 | 18.73  |                     |          |
| 5               | 256QAM | 12 | 13 | 18.70  | 18.55 | 18.77  |                     |          |
| 5               | 256QAM | 25 | 0  | 18.67  | 18.68 | 18.68  |                     |          |
| Channel         |        |    |    | 18615  | 18900 | 19185  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 1851.5 | 1880  | 1908.5 |                     |          |
| 3               | QPSK   | 1  | 0  | 21.20  | 21.15 | 21.07  | 22.3                | 0        |
| 3               | QPSK   | 1  | 8  | 21.11  | 21.18 | 21.22  |                     |          |
| 3               | QPSK   | 1  | 14 | 21.26  | 21.06 | 21.17  |                     |          |
| 3               | QPSK   | 8  | 0  | 21.29  | 21.12 | 21.27  | 22.3                | 0        |
| 3               | QPSK   | 8  | 4  | 21.24  | 21.28 | 21.30  |                     |          |
| 3               | QPSK   | 8  | 7  | 21.32  | 21.20 | 21.32  |                     |          |
| 3               | QPSK   | 15 | 0  | 21.33  | 21.34 | 21.19  |                     |          |
| 3               | 16QAM  | 1  | 0  | 21.83  | 21.38 | 21.60  | 22.3                | 0        |
| 3               | 16QAM  | 1  | 8  | 21.58  | 21.63 | 21.68  |                     |          |
| 3               | 16QAM  | 1  | 14 | 21.43  | 21.74 | 21.47  |                     |          |
| 3               | 16QAM  | 8  | 0  | 21.23  | 21.00 | 21.28  | 22.3                | 0        |
| 3               | 16QAM  | 8  | 4  | 21.28  | 21.21 | 21.23  |                     |          |
| 3               | 16QAM  | 8  | 7  | 21.24  | 21.13 | 21.26  |                     |          |
| 3               | 16QAM  | 15 | 0  | 21.51  | 21.23 | 21.24  |                     |          |
| 3               | 64QAM  | 1  | 0  | 20.92  | 21.16 | 21.12  | 22.3                | 0        |
| 3               | 64QAM  | 1  | 8  | 21.02  | 21.15 | 21.15  |                     |          |
| 3               | 64QAM  | 1  | 14 | 21.15  | 21.06 | 21.26  |                     |          |
| 3               | 64QAM  | 8  | 0  | 20.63  | 20.49 | 20.61  | 21.8                | 0.5      |
| 3               | 64QAM  | 8  | 4  | 20.74  | 20.62 | 20.67  |                     |          |
| 3               | 64QAM  | 8  | 7  | 20.64  | 20.56 | 20.75  |                     |          |
| 3               | 64QAM  | 15 | 0  | 20.74  | 20.66 | 20.64  |                     |          |
| 3               | 256QAM | 1  | 0  | 19.09  | 18.88 | 18.98  | 20.3                | 2        |
| 3               | 256QAM | 1  | 8  | 19.04  | 18.94 | 19.02  |                     |          |
| 3               | 256QAM | 1  | 14 | 19.03  | 19.13 | 19.05  |                     |          |
| 3               | 256QAM | 8  | 0  | 18.68  | 18.55 | 18.70  | 19.8                | 2.5      |
| 3               | 256QAM | 8  | 4  | 18.72  | 18.56 | 18.72  |                     |          |
| 3               | 256QAM | 8  | 7  | 18.79  | 18.54 | 18.77  |                     |          |
| 3               | 256QAM | 15 | 0  | 18.69  | 18.74 | 18.76  |                     |          |
| Channel         |        |    |    | 18607  | 18900 | 19193  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 1850.7 | 1880  | 1909.3 |                     |          |
| 1.4             | QPSK   | 1  | 0  | 21.24  | 21.17 | 21.08  | 22.3                | 0        |
| 1.4             | QPSK   | 1  | 3  | 21.07  | 21.09 | 21.17  |                     |          |
| 1.4             | QPSK   | 1  | 5  | 21.27  | 21.05 | 21.18  |                     |          |
| 1.4             | QPSK   | 3  | 0  | 21.33  | 21.20 | 21.30  |                     |          |
| 1.4             | QPSK   | 3  | 1  | 21.30  | 21.22 | 21.27  |                     |          |
| 1.4             | QPSK   | 3  | 3  | 21.36  | 21.28 | 21.32  |                     |          |
| 1.4             | QPSK   | 6  | 0  | 21.30  | 21.28 | 21.26  | 22.3                | 0        |
| 1.4             | 16QAM  | 1  | 0  | 21.78  | 21.40 | 21.64  | 22.3                | 0        |
| 1.4             | 16QAM  | 1  | 3  | 21.68  | 21.62 | 21.58  |                     |          |
| 1.4             | 16QAM  | 1  | 5  | 21.50  | 21.75 | 21.44  |                     |          |
| 1.4             | 16QAM  | 3  | 0  | 21.22  | 20.96 | 21.21  |                     |          |



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|     |        |   |   |       |       |       |      |     |
|-----|--------|---|---|-------|-------|-------|------|-----|
| 1.4 | 16QAM  | 3 | 1 | 21.30 | 21.21 | 21.21 |      |     |
| 1.4 | 16QAM  | 3 | 3 | 21.28 | 21.05 | 21.25 |      |     |
| 1.4 | 16QAM  | 6 | 0 | 21.51 | 21.26 | 21.24 | 22.3 | 0   |
| 1.4 | 64QAM  | 1 | 0 | 21.19 | 21.08 | 21.18 | 22.3 | 0   |
| 1.4 | 64QAM  | 1 | 3 | 21.26 | 21.15 | 21.17 |      |     |
| 1.4 | 64QAM  | 1 | 5 | 21.26 | 21.11 | 21.17 |      |     |
| 1.4 | 64QAM  | 3 | 0 | 21.20 | 21.06 | 21.15 |      |     |
| 1.4 | 64QAM  | 3 | 1 | 21.28 | 21.12 | 21.12 |      |     |
| 1.4 | 64QAM  | 3 | 3 | 21.28 | 21.13 | 21.20 | 21.8 | 0.5 |
| 1.4 | 64QAM  | 6 | 0 | 20.83 | 20.70 | 20.78 |      |     |
| 1.4 | 256QAM | 1 | 0 | 19.03 | 18.90 | 18.91 | 20.3 | 2   |
| 1.4 | 256QAM | 1 | 3 | 19.14 | 18.99 | 19.03 |      |     |
| 1.4 | 256QAM | 1 | 5 | 19.16 | 18.97 | 19.02 |      |     |
| 1.4 | 256QAM | 3 | 0 | 18.81 | 18.67 | 18.74 |      |     |
| 1.4 | 256QAM | 3 | 1 | 18.92 | 18.73 | 18.77 |      |     |
| 1.4 | 256QAM | 3 | 3 | 18.79 | 18.64 | 18.74 | 19.8 | 2.5 |
| 1.4 | 256QAM | 6 | 0 | 18.73 | 18.57 | 18.65 |      |     |



**<LTE Band 66>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 132072                | 132322                   | 132572                 |                     |          |
| Frequency (MHz) |            |         |           | 1720                  | 1745                     | 1770                   |                     |          |
| 20              | QPSK       | 1       | 0         | 22.40                 | 22.57                    | 22.45                  | 23.8                | 0        |
| 20              | QPSK       | 1       | 49        | 22.31                 | 22.38                    | 22.25                  |                     |          |
| 20              | QPSK       | 1       | 99        | 22.34                 | 22.50                    | 22.26                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.45                 | 22.52                    | 22.43                  | 23.8                | 0        |
| 20              | QPSK       | 50      | 24        | 22.47                 | 22.49                    | 22.44                  |                     |          |
| 20              | QPSK       | 50      | 50        | 22.38                 | 22.53                    | 22.38                  |                     |          |
| 20              | QPSK       | 100     | 0         | 22.52                 | 22.54                    | 22.51                  | 23.8                | 0        |
| 20              | 16QAM      | 1       | 0         | 22.82                 | 22.89                    | 22.85                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 22.79                 | 22.81                    | 22.77                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 22.72                 | 22.78                    | 22.73                  | 23.8                | 0        |
| 20              | 16QAM      | 50      | 0         | 22.47                 | 22.48                    | 22.47                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 22.40                 | 22.50                    | 22.45                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 22.48                 | 22.57                    | 22.53                  | 23.8                | 0        |
| 20              | 16QAM      | 100     | 0         | 22.40                 | 22.46                    | 22.42                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 21.98                 | 22.08                    | 22.01                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 22.62                 | 22.64                    | 22.63                  | 23.8                | 0        |
| 20              | 64QAM      | 1       | 99        | 22.55                 | 22.55                    | 22.49                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 21.61                 | 21.69                    | 21.67                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 21.72                 | 21.74                    | 21.72                  | 22.8                | 1        |
| 20              | 64QAM      | 50      | 50        | 21.68                 | 21.76                    | 21.76                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 21.64                 | 21.72                    | 21.71                  |                     |          |
| 20              | 256QAM     | 1       | 0         | 19.58                 | 19.66                    | 19.62                  | 20.8                | 3        |
| 20              | 256QAM     | 1       | 49        | 19.52                 | 19.62                    | 19.55                  |                     |          |
| 20              | 256QAM     | 1       | 99        | 19.59                 | 19.59                    | 19.59                  |                     |          |
| 20              | 256QAM     | 50      | 0         | 19.71                 | 19.74                    | 19.65                  | 20.8                | 3        |
| 20              | 256QAM     | 50      | 24        | 19.67                 | 19.76                    | 19.72                  |                     |          |
| 20              | 256QAM     | 50      | 50        | 19.77                 | 19.82                    | 19.76                  |                     |          |
| 20              | 256QAM     | 100     | 0         | 19.73                 | 19.73                    | 19.69                  |                     |          |
| Channel         |            |         |           | 132047                | 132322                   | 132597                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1717.5                | 1745                     | 1772.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 22.33                 | 22.48                    | 22.43                  | 23.8                | 0        |
| 15              | QPSK       | 1       | 37        | 22.24                 | 22.38                    | 22.24                  |                     |          |
| 15              | QPSK       | 1       | 74        | 22.33                 | 22.47                    | 22.26                  |                     |          |
| 15              | QPSK       | 36      | 0         | 22.45                 | 22.47                    | 22.40                  | 23.8                | 0        |
| 15              | QPSK       | 36      | 20        | 22.40                 | 22.46                    | 22.39                  |                     |          |
| 15              | QPSK       | 36      | 39        | 22.30                 | 22.48                    | 22.31                  |                     |          |
| 15              | QPSK       | 75      | 0         | 22.43                 | 22.53                    | 22.51                  | 23.8                | 0        |
| 15              | 16QAM      | 1       | 0         | 22.76                 | 22.87                    | 22.75                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 22.71                 | 22.71                    | 22.71                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 22.65                 | 22.77                    | 22.64                  | 23.8                | 0        |
| 15              | 16QAM      | 36      | 0         | 22.42                 | 22.42                    | 22.47                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 22.37                 | 22.42                    | 22.43                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 22.38                 | 22.51                    | 22.44                  | 23.8                | 0        |
| 15              | 16QAM      | 75      | 0         | 22.33                 | 22.41                    | 22.39                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 21.95                 | 22.00                    | 21.94                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 22.59                 | 22.54                    | 22.56                  | 23.8                | 0        |
| 15              | 64QAM      | 1       | 74        | 22.52                 | 22.55                    | 22.45                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 21.51                 | 21.67                    | 21.67                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 21.66                 | 21.65                    | 21.65                  | 22.8                | 1        |
| 15              | 64QAM      | 36      | 39        | 21.62                 | 21.71                    | 21.67                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 21.57                 | 21.64                    | 21.61                  |                     |          |



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|                 |        |    |    |        |        |        |                     |          |
|-----------------|--------|----|----|--------|--------|--------|---------------------|----------|
| 15              | 256QAM | 1  | 0  | 19.49  | 19.66  | 19.61  | 20.8                | 3        |
| 15              | 256QAM | 1  | 37 | 19.43  | 19.58  | 19.54  |                     |          |
| 15              | 256QAM | 1  | 74 | 19.51  | 19.50  | 19.59  |                     |          |
| 15              | 256QAM | 36 | 0  | 19.69  | 19.66  | 19.57  | 20.8                | 3        |
| 15              | 256QAM | 36 | 20 | 19.63  | 19.71  | 19.72  |                     |          |
| 15              | 256QAM | 36 | 39 | 19.70  | 19.78  | 19.72  |                     |          |
| 15              | 256QAM | 75 | 0  | 19.71  | 19.63  | 19.63  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 132022 | 132322 | 132622 |                     |          |
| Frequency (MHz) |        |    |    | 1715   | 1745   | 1775   |                     |          |
| 10              | QPSK   | 1  | 0  | 22.34  | 22.52  | 22.44  | 23.8                | 0        |
| 10              | QPSK   | 1  | 25 | 22.30  | 22.28  | 22.21  |                     |          |
| 10              | QPSK   | 1  | 49 | 22.29  | 22.49  | 22.18  |                     |          |
| 10              | QPSK   | 25 | 0  | 22.42  | 22.44  | 22.40  | 23.8                | 0        |
| 10              | QPSK   | 25 | 12 | 22.40  | 22.47  | 22.34  |                     |          |
| 10              | QPSK   | 25 | 25 | 22.29  | 22.50  | 22.36  |                     |          |
| 10              | QPSK   | 50 | 0  | 22.46  | 22.45  | 22.44  | 23.8                | 0        |
| 10              | 16QAM  | 1  | 0  | 22.73  | 22.89  | 22.78  |                     |          |
| 10              | 16QAM  | 1  | 25 | 22.76  | 22.81  | 22.71  |                     |          |
| 10              | 16QAM  | 1  | 49 | 22.66  | 22.73  | 22.63  | 23.8                | 0        |
| 10              | 16QAM  | 25 | 0  | 22.40  | 22.41  | 22.41  |                     |          |
| 10              | 16QAM  | 25 | 12 | 22.39  | 22.40  | 22.38  |                     |          |
| 10              | 16QAM  | 25 | 25 | 22.39  | 22.49  | 22.49  | 23.8                | 0        |
| 10              | 16QAM  | 50 | 0  | 22.36  | 22.46  | 22.42  |                     |          |
| 10              | 64QAM  | 1  | 0  | 21.89  | 22.05  | 21.95  |                     |          |
| 10              | 64QAM  | 1  | 25 | 22.59  | 22.60  | 22.55  | 23.8                | 0        |
| 10              | 64QAM  | 1  | 49 | 22.55  | 22.53  | 22.39  |                     |          |
| 10              | 64QAM  | 25 | 0  | 21.59  | 21.68  | 21.59  |                     |          |
| 10              | 64QAM  | 25 | 12 | 21.66  | 21.72  | 21.72  | 22.8                | 1        |
| 10              | 64QAM  | 25 | 25 | 21.58  | 21.75  | 21.68  |                     |          |
| 10              | 64QAM  | 50 | 0  | 21.62  | 21.66  | 21.71  |                     |          |
| 10              | 256QAM | 1  | 0  | 19.56  | 19.62  | 19.59  | 20.8                | 3        |
| 10              | 256QAM | 1  | 25 | 19.46  | 19.61  | 19.55  |                     |          |
| 10              | 256QAM | 1  | 49 | 19.57  | 19.58  | 19.55  |                     |          |
| 10              | 256QAM | 25 | 0  | 19.67  | 19.68  | 19.62  | 20.8                | 3        |
| 10              | 256QAM | 25 | 12 | 19.61  | 19.68  | 19.66  |                     |          |
| 10              | 256QAM | 25 | 25 | 19.69  | 19.77  | 19.70  |                     |          |
| 10              | 256QAM | 50 | 0  | 19.69  | 19.71  | 19.66  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 131997 | 132322 | 132647 |                     |          |
| Frequency (MHz) |        |    |    | 1712.5 | 1745   | 1777.5 |                     |          |
| 5               | QPSK   | 1  | 0  | 22.30  | 22.57  | 22.35  | 23.8                | 0        |
| 5               | QPSK   | 1  | 12 | 22.27  | 22.31  | 22.18  |                     |          |
| 5               | QPSK   | 1  | 24 | 22.31  | 22.50  | 22.17  |                     |          |
| 5               | QPSK   | 12 | 0  | 22.45  | 22.46  | 22.36  | 23.8                | 0        |
| 5               | QPSK   | 12 | 7  | 22.46  | 22.47  | 22.42  |                     |          |
| 5               | QPSK   | 12 | 13 | 22.33  | 22.51  | 22.36  |                     |          |
| 5               | QPSK   | 25 | 0  | 22.45  | 22.52  | 22.51  | 23.8                | 0        |
| 5               | 16QAM  | 1  | 0  | 22.75  | 22.89  | 22.82  |                     |          |
| 5               | 16QAM  | 1  | 12 | 22.72  | 22.76  | 22.75  |                     |          |
| 5               | 16QAM  | 1  | 24 | 22.68  | 22.74  | 22.70  | 23.8                | 0        |
| 5               | 16QAM  | 12 | 0  | 22.37  | 22.41  | 22.43  |                     |          |
| 5               | 16QAM  | 12 | 7  | 22.35  | 22.40  | 22.36  |                     |          |
| 5               | 16QAM  | 12 | 13 | 22.38  | 22.48  | 22.51  | 23.8                | 0        |
| 5               | 16QAM  | 25 | 0  | 22.35  | 22.40  | 22.34  |                     |          |
| 5               | 64QAM  | 1  | 0  | 21.94  | 22.07  | 21.93  |                     |          |
| 5               | 64QAM  | 1  | 12 | 22.57  | 22.54  | 22.56  | 23.8                | 0        |
| 5               | 64QAM  | 1  | 24 | 22.54  | 22.51  | 22.47  |                     |          |



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|                 |        |    |    |        |        |        |                        |             |
|-----------------|--------|----|----|--------|--------|--------|------------------------|-------------|
| 5               | 64QAM  | 12 | 0  | 21.61  | 21.62  | 21.66  | 22.8                   | 1           |
| 5               | 64QAM  | 12 | 7  | 21.62  | 21.66  | 21.71  |                        |             |
| 5               | 64QAM  | 12 | 13 | 21.58  | 21.73  | 21.69  |                        |             |
| 5               | 64QAM  | 25 | 0  | 21.60  | 21.70  | 21.63  |                        |             |
| 5               | 256QAM | 1  | 0  | 19.57  | 19.63  | 19.55  | 20.8                   | 3           |
| 5               | 256QAM | 1  | 12 | 19.47  | 19.59  | 19.46  |                        |             |
| 5               | 256QAM | 1  | 24 | 19.54  | 19.56  | 19.55  |                        |             |
| 5               | 256QAM | 12 | 0  | 19.70  | 19.72  | 19.59  | 20.8                   | 3           |
| 5               | 256QAM | 12 | 7  | 19.60  | 19.75  | 19.71  |                        |             |
| 5               | 256QAM | 12 | 13 | 19.73  | 19.78  | 19.69  |                        |             |
| 5               | 256QAM | 25 | 0  | 19.71  | 19.68  | 19.69  |                        |             |
| Channel         |        |    |    | 131987 | 132322 | 132657 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |        |    |    | 1711.5 | 1745   | 1778.5 |                        |             |
| 3               | QPSK   | 1  | 0  | 22.35  | 22.53  | 22.40  | 23.8                   | 0           |
| 3               | QPSK   | 1  | 8  | 22.25  | 22.30  | 22.25  |                        |             |
| 3               | QPSK   | 1  | 14 | 22.30  | 22.43  | 22.21  |                        |             |
| 3               | QPSK   | 8  | 0  | 22.41  | 22.52  | 22.43  | 23.8                   | 0           |
| 3               | QPSK   | 8  | 4  | 22.41  | 22.48  | 22.39  |                        |             |
| 3               | QPSK   | 8  | 7  | 22.36  | 22.49  | 22.36  |                        |             |
| 3               | QPSK   | 15 | 0  | 22.44  | 22.52  | 22.46  |                        |             |
| 3               | 16QAM  | 1  | 0  | 22.74  | 22.86  | 22.78  | 23.8                   | 0           |
| 3               | 16QAM  | 1  | 8  | 22.75  | 22.77  | 22.74  |                        |             |
| 3               | 16QAM  | 1  | 14 | 22.63  | 22.75  | 22.72  |                        |             |
| 3               | 16QAM  | 8  | 0  | 22.40  | 22.44  | 22.47  | 23.8                   | 0           |
| 3               | 16QAM  | 8  | 4  | 22.37  | 22.47  | 22.39  |                        |             |
| 3               | 16QAM  | 8  | 7  | 22.39  | 22.53  | 22.46  |                        |             |
| 3               | 16QAM  | 15 | 0  | 22.37  | 22.44  | 22.35  |                        |             |
| 3               | 64QAM  | 1  | 0  | 21.97  | 22.06  | 21.95  | 23.8                   | 0           |
| 3               | 64QAM  | 1  | 8  | 22.62  | 22.59  | 22.59  |                        |             |
| 3               | 64QAM  | 1  | 14 | 22.50  | 22.54  | 22.41  |                        |             |
| 3               | 64QAM  | 8  | 0  | 21.58  | 21.68  | 21.62  |                        |             |
| 3               | 64QAM  | 8  | 4  | 21.69  | 21.69  | 21.69  | 22.8                   | 1           |
| 3               | 64QAM  | 8  | 7  | 21.65  | 21.76  | 21.76  |                        |             |
| 3               | 64QAM  | 15 | 0  | 21.63  | 21.63  | 21.70  |                        |             |
| 3               | 256QAM | 1  | 0  | 19.58  | 19.59  | 19.52  | 20.8                   | 3           |
| 3               | 256QAM | 1  | 8  | 19.46  | 19.61  | 19.54  |                        |             |
| 3               | 256QAM | 1  | 14 | 19.50  | 19.58  | 19.52  |                        |             |
| 3               | 256QAM | 8  | 0  | 19.71  | 19.73  | 19.57  | 20.8                   | 3           |
| 3               | 256QAM | 8  | 4  | 19.62  | 19.73  | 19.69  |                        |             |
| 3               | 256QAM | 8  | 7  | 19.76  | 19.80  | 19.67  |                        |             |
| 3               | 256QAM | 15 | 0  | 19.63  | 19.68  | 19.66  |                        |             |
| Channel         |        |    |    | 131979 | 132322 | 132665 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |        |    |    | 1710.7 | 1745   | 1779.3 |                        |             |
| 1.4             | QPSK   | 1  | 0  | 22.39  | 22.49  | 22.44  | 23.8                   | 0           |
| 1.4             | QPSK   | 1  | 3  | 22.31  | 22.36  | 22.25  |                        |             |
| 1.4             | QPSK   | 1  | 5  | 22.33  | 22.42  | 22.17  |                        |             |
| 1.4             | QPSK   | 3  | 0  | 22.35  | 22.45  | 22.40  |                        |             |
| 1.4             | QPSK   | 3  | 1  | 22.46  | 22.44  | 22.42  |                        |             |
| 1.4             | QPSK   | 3  | 3  | 22.37  | 22.45  | 22.38  |                        |             |
| 1.4             | QPSK   | 6  | 0  | 22.44  | 22.45  | 22.45  | 23.8                   | 0           |
| 1.4             | 16QAM  | 1  | 0  | 22.78  | 22.87  | 22.77  | 23.8                   | 0           |
| 1.4             | 16QAM  | 1  | 3  | 22.73  | 22.81  | 22.75  |                        |             |
| 1.4             | 16QAM  | 1  | 5  | 22.62  | 22.73  | 22.65  |                        |             |
| 1.4             | 16QAM  | 3  | 0  | 22.43  | 22.40  | 22.40  |                        |             |
| 1.4             | 16QAM  | 3  | 1  | 22.31  | 22.49  | 22.42  |                        |             |
| 1.4             | 16QAM  | 3  | 3  | 22.43  | 22.48  | 22.49  |                        |             |



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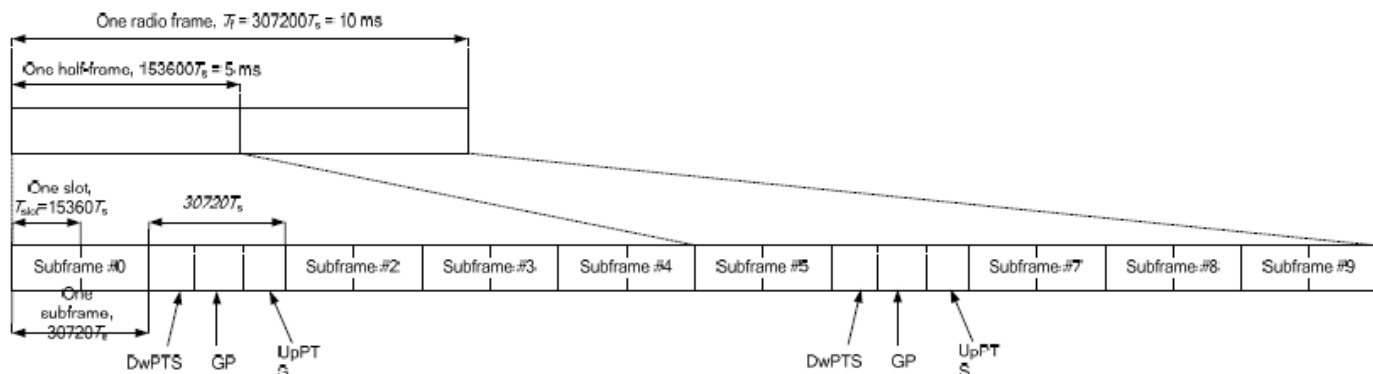
|     |        |   |   |       |       |       |      |   |
|-----|--------|---|---|-------|-------|-------|------|---|
| 1.4 | 16QAM  | 6 | 0 | 22.32 | 22.42 | 22.36 | 23.8 | 0 |
| 1.4 | 64QAM  | 1 | 0 | 21.97 | 21.98 | 21.95 | 23.8 | 0 |
| 1.4 | 64QAM  | 1 | 3 | 22.55 | 22.63 | 22.54 |      |   |
| 1.4 | 64QAM  | 1 | 5 | 22.54 | 22.52 | 22.42 |      |   |
| 1.4 | 64QAM  | 3 | 0 | 21.98 | 22.02 | 22.01 |      |   |
| 1.4 | 64QAM  | 3 | 1 | 22.60 | 22.62 | 22.58 |      |   |
| 1.4 | 64QAM  | 3 | 3 | 22.51 | 22.48 | 22.48 |      |   |
| 1.4 | 64QAM  | 6 | 0 | 21.43 | 21.63 | 21.45 | 22.8 | 1 |
| 1.4 | 256QAM | 1 | 0 | 19.47 | 19.66 | 19.49 | 20.8 | 3 |
| 1.4 | 256QAM | 1 | 3 | 19.35 | 19.39 | 19.25 |      |   |
| 1.4 | 256QAM | 1 | 5 | 19.43 | 19.54 | 19.33 |      |   |
| 1.4 | 256QAM | 3 | 0 | 19.53 | 19.57 | 19.47 |      |   |
| 1.4 | 256QAM | 3 | 1 | 19.56 | 19.57 | 19.46 |      |   |
| 1.4 | 256QAM | 3 | 3 | 19.44 | 19.62 | 19.44 |      |   |
| 1.4 | 256QAM | 6 | 0 | 19.62 | 19.61 | 19.61 | 20.8 | 3 |

**<TDD LTE SAR Measurement>**

TDD LTE configuration setup for SAR measurement

SAR was tested with a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by 3GPP.

- 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations
- “special subframe S” contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS
- Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.



**Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).**

**Table 4.2-2: Uplink-downlink configurations.**

| Uplink-downlink configuration | Downlink-to-Uplink Switch-point periodicity | Subframe number |   |   |   |   |   |   |   |   |   |
|-------------------------------|---------------------------------------------|-----------------|---|---|---|---|---|---|---|---|---|
|                               |                                             | 0               | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 0                             | 5 ms                                        | D               | S | U | U | U | D | S | U | U | U |
| 1                             | 5 ms                                        | D               | S | U | U | D | D | S | U | U | D |
| 2                             | 5 ms                                        | D               | S | U | D | D | D | S | U | D | D |
| 3                             | 10 ms                                       | D               | S | U | U | U | D | D | D | D | D |
| 4                             | 10 ms                                       | D               | S | U | U | D | D | D | D | D | D |
| 5                             | 10 ms                                       | D               | S | U | D | D | D | D | D | D | D |
| 6                             | 5 ms                                        | D               | S | U | U | U | D | S | U | U | D |

**Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).**

| Special subframe configuration | Normal cyclic prefix in downlink |                                |                                  | Extended cyclic prefix in downlink |                                |                                  |
|--------------------------------|----------------------------------|--------------------------------|----------------------------------|------------------------------------|--------------------------------|----------------------------------|
|                                | DwPTS                            | UpPTS                          |                                  | DwPTS                              | UpPTS                          |                                  |
|                                |                                  | Normal cyclic prefix in uplink | Extended cyclic prefix in uplink |                                    | Normal cyclic prefix in uplink | Extended cyclic prefix in uplink |
| 0                              | $6592 \cdot T_s$                 | $2192 \cdot T_s$               | $2560 \cdot T_s$                 | $7680 \cdot T_s$                   | $2192 \cdot T_s$               | $2560 \cdot T_s$                 |
| 1                              | $19760 \cdot T_s$                |                                |                                  | $20480 \cdot T_s$                  |                                |                                  |
| 2                              | $21952 \cdot T_s$                |                                |                                  | $23040 \cdot T_s$                  |                                |                                  |
| 3                              | $24144 \cdot T_s$                |                                |                                  | $25600 \cdot T_s$                  |                                |                                  |
| 4                              | $26336 \cdot T_s$                | $4384 \cdot T_s$               | $5120 \cdot T_s$                 | $7680 \cdot T_s$                   | $4384 \cdot T_s$               | $5120 \cdot T_s$                 |
| 5                              | $6592 \cdot T_s$                 |                                |                                  | $20480 \cdot T_s$                  |                                |                                  |
| 6                              | $19760 \cdot T_s$                |                                |                                  | $23040 \cdot T_s$                  |                                |                                  |
| 7                              | $21952 \cdot T_s$                |                                |                                  | $12800 \cdot T_s$                  | -                              | -                                |
| 8                              | $24144 \cdot T_s$                |                                |                                  | -                                  |                                |                                  |
| 9                              | $13168 \cdot T_s$                |                                |                                  | -                                  |                                |                                  |

| Special subframe (30720·T <sub>s</sub> ): Normal cyclic prefix in downlink (UpPTS) |                                |                                |                                  |
|------------------------------------------------------------------------------------|--------------------------------|--------------------------------|----------------------------------|
|                                                                                    | Special subframe configuration | Normal cyclic prefix in uplink | Extended cyclic prefix in uplink |
| Uplink duty factor in one special subframe                                         | 0~4                            | 7.13%                          | 8.33%                            |
|                                                                                    | 5~9                            | 14.3%                          | 16.7%                            |

| Special subframe(30720·T <sub>s</sub> ): Extended cyclic prefix in downlink (UpPTS) |                                |                                |                                  |
|-------------------------------------------------------------------------------------|--------------------------------|--------------------------------|----------------------------------|
|                                                                                     | Special subframe configuration | Normal cyclic prefix in uplink | Extended cyclic prefix in uplink |
| Uplink duty factor in one special subframe                                          | 0~3                            | 7.13%                          | 8.33%                            |
|                                                                                     | 4~7                            | 14.3%                          | 16.7%                            |

The highest duty factor is resulted from:

- i. Uplink-downlink configuration: 0. In a half-frame consisted of 5 subframes, uplink operation is in 3 uplink subframes and 1 special subframe.
- ii. special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink
- iii. for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is:  $(3+0.167)/5 = 63.3\%$
- iv. for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is:  $(3+0.143)/5 = 62.9\%$
- v. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix  $63.3\%/62.9\% = 1.006$  is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)\* Tune-up Scaling Factor\* scaling factor for extended cyclic prefix.
- vi. The device supports Power Class 3 uplink-downlink configurations 0 and 6, and Power Class 2 uplink-downlink configurations 1 to 5 operations for LTE Band 41.
- vii. The highest available duty cycle for Power Class 2 operation is 43.3% using UL-DL configuration 1, for Power Class 3 operation is 63.3% using UL-DL configuration 0. Per FCC Guidance, all SAR tests were performed using Power Class 3. SAR with Power Class 2 at the available duty factor was additionally performed for the Power Class 3 configuration with the highest SAR among all exposure condition.

**Ant 0**
**<LTE Band 38>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 37850                 | 38000                    | 38150                  |                     |          |
| Frequency (MHz) |            |         |           | 2580                  | 2595                     | 2610                   |                     |          |
| 20              | QPSK       | 1       | 0         | 20.22                 | 20.10                    | 20.01                  | 21.1                | 0        |
| 20              | QPSK       | 1       | 49        | 20.21                 | 20.12                    | 19.97                  |                     |          |
| 20              | QPSK       | 1       | 99        | 20.20                 | 20.09                    | 19.97                  |                     |          |
| 20              | QPSK       | 50      | 0         | 20.40                 | 20.20                    | 20.08                  | 21.1                | 0        |
| 20              | QPSK       | 50      | 24        | 20.39                 | 20.30                    | 20.07                  |                     |          |
| 20              | QPSK       | 50      | 50        | 20.36                 | 20.24                    | 20.13                  |                     |          |
| 20              | QPSK       | 100     | 0         | 20.39                 | 20.27                    | 20.08                  | 21.1                | 0        |
| 20              | 16QAM      | 1       | 0         | 20.34                 | 20.22                    | 20.09                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 20.33                 | 20.20                    | 20.10                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 20.34                 | 20.21                    | 20.13                  | 21.1                | 0        |
| 20              | 16QAM      | 50      | 0         | 20.41                 | 20.24                    | 20.10                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 20.40                 | 20.30                    | 20.08                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 20.38                 | 20.26                    | 20.13                  | 21.1                | 0        |
| 20              | 16QAM      | 100     | 0         | 20.37                 | 20.29                    | 20.07                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 20.03                 | 19.91                    | 19.79                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 20.04                 | 19.96                    | 19.86                  | 21.1                | 0        |
| 20              | 64QAM      | 1       | 99        | 20.09                 | 20.03                    | 19.88                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 20.46                 | 20.27                    | 20.14                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 20.43                 | 20.33                    | 20.13                  | 21.1                | 0        |
| 20              | 64QAM      | 50      | 50        | 20.41                 | 20.27                    | 20.16                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 20.42                 | 20.31                    | 20.09                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 18.85                 | 18.94                    | 18.93                  | 21.1                | 0        |
| 20              | 64QAM      | 1       | 49        | 18.72                 | 18.78                    | 18.68                  |                     |          |
| 20              | 64QAM      | 1       | 99        | 18.68                 | 18.72                    | 18.62                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 19.00                 | 19.10                    | 19.02                  | 21.1                | 0        |
| 20              | 64QAM      | 50      | 24        | 19.09                 | 19.13                    | 19.04                  |                     |          |
| 20              | 64QAM      | 50      | 50        | 19.01                 | 19.04                    | 18.95                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 18.98                 | 19.08                    | 19.05                  |                     |          |
| Channel         |            |         |           | 37825                 | 38000                    | 38175                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2577.5                | 2595                     | 2612.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 20.28                 | 20.15                    | 20.01                  | 21.1                | 0        |
| 15              | QPSK       | 1       | 37        | 20.27                 | 20.16                    | 20.02                  |                     |          |
| 15              | QPSK       | 1       | 74        | 20.24                 | 20.11                    | 19.99                  |                     |          |
| 15              | QPSK       | 36      | 0         | 20.40                 | 20.20                    | 20.08                  | 21.1                | 0        |
| 15              | QPSK       | 36      | 20        | 20.39                 | 20.24                    | 20.03                  |                     |          |
| 15              | QPSK       | 36      | 39        | 20.37                 | 20.22                    | 20.10                  |                     |          |
| 15              | QPSK       | 75      | 0         | 20.40                 | 20.25                    | 20.05                  | 21.1                | 0        |
| 15              | 16QAM      | 1       | 0         | 20.35                 | 20.23                    | 20.11                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 20.28                 | 20.18                    | 20.04                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 20.36                 | 20.24                    | 20.10                  | 21.1                | 0        |
| 15              | 16QAM      | 36      | 0         | 20.35                 | 20.17                    | 20.03                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 20.32                 | 20.21                    | 20.01                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 20.31                 | 20.19                    | 20.07                  | 21.1                | 0        |
| 15              | 16QAM      | 75      | 0         | 20.37                 | 20.26                    | 20.05                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 20.06                 | 19.88                    | 19.78                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 20.08                 | 19.99                    | 19.87                  | 21.1                | 0        |
| 15              | 64QAM      | 1       | 74        | 20.09                 | 19.99                    | 19.82                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 20.43                 | 20.23                    | 20.10                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 20.44                 | 20.28                    | 20.10                  | 21.1                | 0        |
| 15              | 64QAM      | 36      | 39        | 20.40                 | 20.27                    | 20.12                  |                     |          |



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|                 |       |    |    |        |       |        |               |      |
|-----------------|-------|----|----|--------|-------|--------|---------------|------|
| 15              | 64QAM | 75 | 0  | 20.43  | 20.28 | 20.10  |               |      |
| 15              | 64QAM | 1  | 0  | 18.76  | 18.86 | 18.90  |               |      |
| 15              | 64QAM | 1  | 37 | 18.65  | 18.70 | 18.59  | 21.1          | 0    |
| 15              | 64QAM | 1  | 74 | 18.67  | 18.67 | 18.53  |               |      |
| 15              | 64QAM | 36 | 0  | 18.95  | 19.08 | 19.02  |               |      |
| 15              | 64QAM | 36 | 20 | 19.04  | 19.13 | 19.04  | 21.1          | 0    |
| 15              | 64QAM | 36 | 39 | 18.96  | 19.02 | 18.86  |               |      |
| 15              | 64QAM | 75 | 0  | 18.90  | 18.98 | 18.98  |               |      |
| Channel         |       |    |    | 37800  | 38000 | 38200  | Tune-up limit | MPR  |
| Frequency (MHz) |       |    |    | 2575   | 2595  | 2615   | (dBm)         | (dB) |
| 10              | QPSK  | 1  | 0  | 20.27  | 20.15 | 19.93  |               |      |
| 10              | QPSK  | 1  | 25 | 20.17  | 20.09 | 19.97  | 21.1          | 0    |
| 10              | QPSK  | 1  | 49 | 20.23  | 20.05 | 19.99  |               |      |
| 10              | QPSK  | 25 | 0  | 20.35  | 20.17 | 20.00  |               |      |
| 10              | QPSK  | 25 | 12 | 20.32  | 20.19 | 19.93  | 21.1          | 0    |
| 10              | QPSK  | 25 | 25 | 20.27  | 20.17 | 20.03  |               |      |
| 10              | QPSK  | 50 | 0  | 20.39  | 20.19 | 20.01  |               |      |
| 10              | 16QAM | 1  | 0  | 20.26  | 20.17 | 20.02  |               |      |
| 10              | 16QAM | 1  | 25 | 20.19  | 20.15 | 20.03  | 21.1          | 0    |
| 10              | 16QAM | 1  | 49 | 20.33  | 20.16 | 20.02  |               |      |
| 10              | 16QAM | 25 | 0  | 20.30  | 20.07 | 19.97  |               |      |
| 10              | 16QAM | 25 | 12 | 20.23  | 20.11 | 19.98  | 21.1          | 0    |
| 10              | 16QAM | 25 | 25 | 20.24  | 20.19 | 20.04  |               |      |
| 10              | 16QAM | 50 | 0  | 20.33  | 20.18 | 20.04  |               |      |
| 10              | 64QAM | 1  | 0  | 20.01  | 19.78 | 19.74  |               |      |
| 10              | 64QAM | 1  | 25 | 20.01  | 19.90 | 19.85  | 21.1          | 0    |
| 10              | 64QAM | 1  | 49 | 20.09  | 19.99 | 19.78  |               |      |
| 10              | 64QAM | 25 | 0  | 20.43  | 20.17 | 20.08  |               |      |
| 10              | 64QAM | 25 | 12 | 20.43  | 20.21 | 20.10  | 21.1          | 0    |
| 10              | 64QAM | 25 | 25 | 20.33  | 20.19 | 20.07  |               |      |
| 10              | 64QAM | 50 | 0  | 20.37  | 20.21 | 20.01  |               |      |
| 10              | 64QAM | 1  | 0  | 18.84  | 18.91 | 18.92  |               |      |
| 10              | 64QAM | 1  | 25 | 18.70  | 18.77 | 18.59  | 21.1          | 0    |
| 10              | 64QAM | 1  | 49 | 18.65  | 18.62 | 18.60  |               |      |
| 10              | 64QAM | 25 | 0  | 18.93  | 19.03 | 18.98  |               |      |
| 10              | 64QAM | 25 | 12 | 19.04  | 19.08 | 18.98  | 21.1          | 0    |
| 10              | 64QAM | 25 | 25 | 18.91  | 19.04 | 18.86  |               |      |
| 10              | 64QAM | 50 | 0  | 18.92  | 19.06 | 19.03  |               |      |
| Channel         |       |    |    | 37775  | 38000 | 38225  | Tune-up limit | MPR  |
| Frequency (MHz) |       |    |    | 2572.5 | 2595  | 2617.5 | (dBm)         | (dB) |
| 5               | QPSK  | 1  | 0  | 20.27  | 20.14 | 19.91  |               |      |
| 5               | QPSK  | 1  | 12 | 20.23  | 20.08 | 20.01  | 21.1          | 0    |
| 5               | QPSK  | 1  | 24 | 20.20  | 20.02 | 19.98  |               |      |
| 5               | QPSK  | 12 | 0  | 20.31  | 20.14 | 20.02  |               |      |
| 5               | QPSK  | 12 | 7  | 20.31  | 20.20 | 20.03  | 21.1          | 0    |
| 5               | QPSK  | 12 | 13 | 20.29  | 20.20 | 20.02  |               |      |
| 5               | QPSK  | 25 | 0  | 20.35  | 20.21 | 19.96  |               |      |
| 5               | 16QAM | 1  | 0  | 20.33  | 20.19 | 20.10  |               |      |
| 5               | 16QAM | 1  | 12 | 20.19  | 20.15 | 19.97  | 21.1          | 0    |
| 5               | 16QAM | 1  | 24 | 20.36  | 20.24 | 20.05  |               |      |
| 5               | 16QAM | 12 | 0  | 20.31  | 20.10 | 19.97  |               |      |
| 5               | 16QAM | 12 | 7  | 20.24  | 20.13 | 19.98  | 21.1          | 0    |
| 5               | 16QAM | 12 | 13 | 20.25  | 20.09 | 20.07  |               |      |
| 5               | 16QAM | 25 | 0  | 20.34  | 20.22 | 19.96  |               |      |
| 5               | 64QAM | 1  | 0  | 20.00  | 19.79 | 19.75  |               |      |
| 5               | 64QAM | 1  | 12 | 19.98  | 19.93 | 19.87  | 21.1          | 0    |



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|   |       |    |    |       |       |       |      |   |
|---|-------|----|----|-------|-------|-------|------|---|
| 5 | 64QAM | 1  | 24 | 20.01 | 19.91 | 19.79 |      |   |
| 5 | 64QAM | 12 | 0  | 20.35 | 20.23 | 20.08 | 21.1 | 0 |
| 5 | 64QAM | 12 | 7  | 20.34 | 20.19 | 20.05 |      |   |
| 5 | 64QAM | 12 | 13 | 20.31 | 20.20 | 20.06 |      |   |
| 5 | 64QAM | 25 | 0  | 20.35 | 20.23 | 20.01 |      |   |
| 5 | 64QAM | 1  | 0  | 18.85 | 18.89 | 18.92 | 21.1 | 0 |
| 5 | 64QAM | 1  | 12 | 18.63 | 18.74 | 18.58 |      |   |
| 5 | 64QAM | 1  | 24 | 18.68 | 18.63 | 18.57 |      |   |
| 5 | 64QAM | 12 | 0  | 18.93 | 19.01 | 18.97 | 21.1 | 0 |
| 5 | 64QAM | 12 | 7  | 19.08 | 19.04 | 18.99 |      |   |
| 5 | 64QAM | 12 | 13 | 18.98 | 18.95 | 18.86 |      |   |
| 5 | 64QAM | 25 | 0  | 18.98 | 19.03 | 18.98 |      |   |



**<LTE Band 41>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Low Middle Ch. / Freq. | Power Middle Ch. / Freq. | Power High Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|------------------------------|--------------------------|-------------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 39750                 | 40185                        | 40620                    | 41055                         | 41490                  |                     |          |
| Frequency (MHz) |            |         |           | 2506                  | 2549.5                       | 2593                     | 2636.5                        | 2680                   |                     |          |
| 20              | QPSK       | 1       | 0         | 20.00                 | 20.06                        | 20.02                    | 19.86                         | 20.09                  | 21.1                | 0        |
| 20              | QPSK       | 1       | 49        | 20.01                 | 20.11                        | 20.01                    | 19.75                         | 20.00                  |                     |          |
| 20              | QPSK       | 1       | 99        | 20.01                 | 20.15                        | 20.06                    | 19.93                         | 20.09                  |                     |          |
| 20              | QPSK       | 50      | 0         | 20.07                 | 20.18                        | 20.17                    | 19.87                         | 20.08                  | 21.1                | 0        |
| 20              | QPSK       | 50      | 24        | 20.27                 | 20.29                        | 20.19                    | 19.96                         | 20.18                  |                     |          |
| 20              | QPSK       | 50      | 50        | 20.13                 | 20.28                        | 20.18                    | 19.95                         | 20.15                  |                     |          |
| 20              | QPSK       | 100     | 0         | 20.15                 | 20.28                        | 20.19                    | 19.96                         | 20.18                  | 21.1                | 0        |
| 20              | 16QAM      | 1       | 0         | 20.08                 | 20.20                        | 20.13                    | 19.94                         | 20.09                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 20.11                 | 20.18                        | 20.10                    | 19.83                         | 20.10                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 20.13                 | 20.23                        | 20.16                    | 19.98                         | 20.18                  | 21.1                | 0        |
| 20              | 16QAM      | 50      | 0         | 20.10                 | 20.21                        | 20.20                    | 19.90                         | 20.13                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 20.18                 | 20.23                        | 20.25                    | 19.99                         | 20.21                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 20.17                 | 20.23                        | 20.23                    | 20.00                         | 20.20                  | 21.1                | 0        |
| 20              | 16QAM      | 100     | 0         | 20.19                 | 20.21                        | 20.23                    | 19.99                         | 20.19                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 19.76                 | 19.93                        | 19.79                    | 19.67                         | 19.72                  | 21.1                | 0        |
| 20              | 64QAM      | 1       | 49        | 19.85                 | 19.86                        | 19.89                    | 19.58                         | 19.82                  |                     |          |
| 20              | 64QAM      | 1       | 99        | 19.87                 | 20.01                        | 19.93                    | 19.56                         | 19.95                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 19.92                 | 20.03                        | 20.01                    | 19.73                         | 19.93                  | 21.1                | 0        |
| 20              | 64QAM      | 50      | 24        | 20.00                 | 20.14                        | 20.05                    | 19.82                         | 20.02                  |                     |          |
| 20              | 64QAM      | 50      | 50        | 19.98                 | 20.11                        | 20.04                    | 19.80                         | 19.99                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 19.99                 | 20.14                        | 20.03                    | 19.80                         | 19.99                  | 21.1                | 0        |
| 20              | 256QAM     | 1       | 0         | 17.82                 | 17.79                        | 17.84                    | 17.83                         | 17.76                  |                     |          |
| 20              | 256QAM     | 1       | 49        | 17.68                 | 17.67                        | 17.71                    | 17.63                         | 17.64                  |                     |          |
| 20              | 256QAM     | 1       | 99        | 17.55                 | 17.59                        | 17.63                    | 17.58                         | 17.60                  | 21.1                | 0        |
| 20              | 256QAM     | 50      | 0         | 17.90                 | 18.00                        | 18.00                    | 17.93                         | 17.92                  |                     |          |
| 20              | 256QAM     | 50      | 24        | 17.95                 | 17.96                        | 18.03                    | 17.99                         | 18.01                  |                     |          |
| 20              | 256QAM     | 50      | 50        | 17.93                 | 17.94                        | 17.94                    | 17.90                         | 17.94                  | 21.1                | 0        |
| 20              | 256QAM     | 100     | 0         | 17.99                 | 17.91                        | 18.00                    | 17.99                         | 17.94                  |                     |          |
| Channel         |            |         |           | 39725                 | 40173                        | 40620                    | 41068                         | 41515                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2503.5                | 2548.3                       | 2593                     | 2637.8                        | 2682.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 19.97                 | 20.08                        | 20.10                    | 19.77                         | 20.01                  | 21.1                | 0        |
| 15              | QPSK       | 1       | 37        | 19.91                 | 20.11                        | 20.07                    | 19.84                         | 20.00                  |                     |          |
| 15              | QPSK       | 1       | 74        | 19.93                 | 20.22                        | 20.10                    | 20.03                         | 20.08                  |                     |          |
| 15              | QPSK       | 36      | 0         | 20.11                 | 20.18                        | 20.11                    | 19.84                         | 20.08                  | 21.1                | 0        |
| 15              | QPSK       | 36      | 20        | 20.12                 | 20.26                        | 20.17                    | 19.93                         | 20.05                  |                     |          |
| 15              | QPSK       | 36      | 39        | 20.09                 | 20.25                        | 20.15                    | 19.93                         | 20.12                  |                     |          |
| 15              | QPSK       | 75      | 0         | 20.13                 | 20.27                        | 20.20                    | 19.95                         | 20.07                  | 21.1                | 0        |
| 15              | 16QAM      | 1       | 0         | 20.05                 | 20.20                        | 20.13                    | 19.91                         | 20.06                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 20.06                 | 20.10                        | 20.01                    | 19.77                         | 19.94                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 20.15                 | 20.25                        | 20.25                    | 19.96                         | 20.20                  | 21.1                | 0        |
| 15              | 16QAM      | 36      | 0         | 20.10                 | 20.16                        | 20.09                    | 19.83                         | 20.04                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 20.11                 | 20.22                        | 20.16                    | 19.91                         | 20.04                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 20.07                 | 20.23                        | 20.15                    | 19.92                         | 20.13                  | 21.1                | 0        |
| 15              | 16QAM      | 75      | 0         | 20.15                 | 20.27                        | 20.22                    | 19.95                         | 20.09                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 19.71                 | 19.91                        | 19.76                    | 19.55                         | 19.68                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 19.89                 | 19.92                        | 19.83                    | 19.58                         | 19.79                  | 21.1                | 0        |
| 15              | 64QAM      | 1       | 74        | 19.90                 | 20.02                        | 19.95                    | 19.64                         | 19.95                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 19.94                 | 20.02                        | 19.96                    | 19.67                         | 19.92                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 19.98                 | 20.07                        | 20.02                    | 19.77                         | 19.88                  | 21.1                | 0        |
| 15              | 64QAM      | 36      | 39        | 19.94                 | 20.09                        | 20.00                    | 19.78                         | 19.97                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 19.98                 | 20.10                        | 20.03                    | 19.77                         | 19.89                  |                     |          |

|                 |        |    |    |        |        |       |         |        |                     |          |
|-----------------|--------|----|----|--------|--------|-------|---------|--------|---------------------|----------|
| 15              | 256QAM | 1  | 0  | 17.73  | 17.74  | 17.83 | 17.82   | 17.68  | 21.1                | 0        |
| 15              | 256QAM | 1  | 37 | 17.62  | 17.57  | 17.62 | 17.58   | 17.56  |                     |          |
| 15              | 256QAM | 1  | 74 | 17.51  | 17.50  | 17.57 | 17.56   | 17.51  |                     |          |
| 15              | 256QAM | 36 | 0  | 17.83  | 17.98  | 17.99 | 17.90   | 17.87  | 21.1                | 0        |
| 15              | 256QAM | 36 | 20 | 17.86  | 17.88  | 17.96 | 17.95   | 17.97  |                     |          |
| 15              | 256QAM | 36 | 39 | 17.83  | 17.88  | 17.88 | 17.86   | 17.92  |                     |          |
| 15              | 256QAM | 75 | 0  | 17.96  | 17.90  | 17.97 | 17.92   | 17.92  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 39700  | 40160  | 40620 | 41080   | 41540  |                     |          |
| Frequency (MHz) |        |    |    | 2501   | 2547   | 2593  | 2639    | 2685   |                     |          |
| 10              | QPSK   | 1  | 0  | 19.87  | 20.02  | 20.00 | 19.67   | 20.01  | 21.1                | 0        |
| 10              | QPSK   | 1  | 25 | 19.91  | 20.07  | 20.03 | 19.78   | 19.99  |                     |          |
| 10              | QPSK   | 1  | 49 | 19.83  | 20.15  | 20.03 | 19.93   | 20.00  |                     |          |
| 10              | QPSK   | 25 | 0  | 20.02  | 20.09  | 20.02 | 19.84   | 20.01  | 21.1                | 0        |
| 10              | QPSK   | 25 | 12 | 20.03  | 20.16  | 20.07 | 19.84   | 20.02  |                     |          |
| 10              | QPSK   | 25 | 25 | 20.07  | 20.18  | 20.09 | 19.84   | 20.10  |                     |          |
| 10              | QPSK   | 50 | 0  | 20.09  | 20.24  | 20.20 | 19.86   | 20.00  | 21.1                | 0        |
| 10              | 16QAM  | 1  | 0  | 20.04  | 20.20  | 20.04 | 19.84   | 19.96  |                     |          |
| 10              | 16QAM  | 1  | 25 | 20.01  | 20.00  | 19.93 | 19.67   | 19.88  |                     |          |
| 10              | 16QAM  | 1  | 49 | 20.07  | 20.24  | 20.19 | 19.86   | 20.10  | 21.1                | 0        |
| 10              | 16QAM  | 25 | 0  | 20.02  | 20.07  | 20.08 | 19.81   | 19.99  |                     |          |
| 10              | 16QAM  | 25 | 12 | 20.04  | 20.22  | 20.13 | 19.88   | 19.94  |                     |          |
| 10              | 16QAM  | 25 | 25 | 19.99  | 20.21  | 20.11 | 19.84   | 20.08  | 21.1                | 0        |
| 10              | 16QAM  | 50 | 0  | 20.09  | 20.19  | 20.19 | 19.94   | 20.07  |                     |          |
| 10              | 64QAM  | 1  | 0  | 19.62  | 19.91  | 19.68 | 19.48   | 19.61  |                     |          |
| 10              | 64QAM  | 1  | 25 | 19.84  | 19.86  | 19.77 | 19.58   | 19.78  | 21.1                | 0        |
| 10              | 64QAM  | 1  | 49 | 19.84  | 19.93  | 19.91 | 19.57   | 19.85  |                     |          |
| 10              | 64QAM  | 25 | 0  | 19.87  | 19.95  | 19.86 | 19.66   | 19.85  |                     |          |
| 10              | 64QAM  | 25 | 12 | 19.90  | 20.04  | 19.92 | 19.70   | 19.83  | 21.1                | 0        |
| 10              | 64QAM  | 25 | 25 | 19.86  | 20.03  | 19.91 | 19.77   | 19.95  |                     |          |
| 10              | 64QAM  | 50 | 0  | 19.88  | 20.06  | 20.01 | 19.76   | 19.83  |                     |          |
| 10              | 256QAM | 1  | 0  | 17.73  | 17.78  | 17.77 | 17.73   | 17.70  | 21.1                | 0        |
| 10              | 256QAM | 1  | 25 | 17.65  | 17.60  | 17.71 | 17.55   | 17.61  |                     |          |
| 10              | 256QAM | 1  | 49 | 17.50  | 17.51  | 17.63 | 17.58   | 17.53  |                     |          |
| 10              | 256QAM | 25 | 0  | 17.90  | 17.99  | 17.97 | 17.93   | 17.84  | 21.1                | 0        |
| 10              | 256QAM | 25 | 12 | 17.88  | 17.95  | 17.97 | 17.95   | 17.97  |                     |          |
| 10              | 256QAM | 25 | 25 | 17.83  | 17.86  | 17.92 | 17.81   | 17.85  |                     |          |
| 10              | 256QAM | 50 | 0  | 17.99  | 17.91  | 17.92 | 17.90   | 17.94  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 39675  | 40148  | 40620 | 41093   | 41565  |                     |          |
| Frequency (MHz) |        |    |    | 2498.5 | 2545.8 | 2593  | 2640.30 | 2687.5 |                     |          |
| 5               | QPSK   | 1  | 0  | 19.88  | 20.03  | 20.06 | 19.70   | 19.93  | 21.1                | 0        |
| 5               | QPSK   | 1  | 12 | 19.89  | 20.08  | 20.06 | 19.79   | 19.93  |                     |          |
| 5               | QPSK   | 1  | 24 | 19.87  | 20.18  | 20.03 | 19.96   | 20.06  |                     |          |
| 5               | QPSK   | 12 | 0  | 20.09  | 20.18  | 20.11 | 19.83   | 20.06  | 21.1                | 0        |
| 5               | QPSK   | 12 | 7  | 20.02  | 20.22  | 20.13 | 19.92   | 20.01  |                     |          |
| 5               | QPSK   | 12 | 13 | 20.04  | 20.24  | 20.05 | 19.83   | 20.05  |                     |          |
| 5               | QPSK   | 25 | 0  | 20.12  | 20.27  | 20.14 | 19.92   | 20.06  | 21.1                | 0        |
| 5               | 16QAM  | 1  | 0  | 19.96  | 20.10  | 20.06 | 19.83   | 19.99  |                     |          |
| 5               | 16QAM  | 1  | 12 | 20.01  | 20.08  | 19.93 | 19.70   | 19.90  |                     |          |
| 5               | 16QAM  | 1  | 24 | 20.05  | 20.25  | 20.22 | 19.94   | 20.14  | 21.1                | 0        |
| 5               | 16QAM  | 12 | 0  | 20.04  | 20.07  | 20.07 | 19.82   | 20.02  |                     |          |
| 5               | 16QAM  | 12 | 7  | 20.04  | 20.20  | 20.07 | 19.89   | 20.04  |                     |          |
| 5               | 16QAM  | 12 | 13 | 20.02  | 20.15  | 20.12 | 19.86   | 20.07  | 21.1                | 0        |
| 5               | 16QAM  | 25 | 0  | 20.07  | 20.22  | 20.20 | 19.94   | 20.00  |                     |          |
| 5               | 64QAM  | 1  | 0  | 19.66  | 19.87  | 19.74 | 19.51   | 19.59  |                     |          |
| 5               | 64QAM  | 1  | 12 | 19.89  | 19.87  | 19.80 | 19.55   | 19.69  | 21.1                | 0        |
| 5               | 64QAM  | 1  | 24 | 19.81  | 19.95  | 19.87 | 19.60   | 19.91  |                     |          |



# FCC SAR TEST REPORT

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|   |        |    |    |       |       |       |       |       |      |   |
|---|--------|----|----|-------|-------|-------|-------|-------|------|---|
| 5 | 64QAM  | 12 | 0  | 19.89 | 19.97 | 19.94 | 19.67 | 19.84 | 21.1 | 0 |
| 5 | 64QAM  | 12 | 7  | 19.94 | 20.00 | 19.96 | 19.72 | 19.87 |      |   |
| 5 | 64QAM  | 12 | 13 | 19.86 | 20.05 | 19.93 | 19.77 | 19.91 |      |   |
| 5 | 64QAM  | 25 | 0  | 19.96 | 20.01 | 19.94 | 19.69 | 19.89 |      |   |
| 5 | 256QAM | 1  | 0  | 17.77 | 17.71 | 17.76 | 17.76 | 17.68 | 21.1 | 0 |
| 5 | 256QAM | 1  | 12 | 17.66 | 17.67 | 17.68 | 17.54 | 17.56 |      |   |
| 5 | 256QAM | 1  | 24 | 17.50 | 17.49 | 17.58 | 17.58 | 17.52 |      |   |
| 5 | 256QAM | 12 | 0  | 17.83 | 17.99 | 17.92 | 17.83 | 17.89 | 21.1 | 0 |
| 5 | 256QAM | 12 | 7  | 17.88 | 17.93 | 17.99 | 17.99 | 17.91 |      |   |
| 5 | 256QAM | 12 | 13 | 17.88 | 17.92 | 17.90 | 17.84 | 17.88 |      |   |
| 5 | 256QAM | 25 | 0  | 17.92 | 17.89 | 17.92 | 17.97 | 17.94 |      |   |



## &lt;LTE Band 41 HPUE&gt;

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Low Middle Ch. / Freq. | Power Middle Ch. / Freq. | Power High Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|------------------------------|--------------------------|-------------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 39750                 | 40185                        | 40620                    | 41055                         | 41490                  |                     |          |
| Frequency (MHz) |            |         |           | 2506                  | 2549.5                       | 2593                     | 2636.5                        | 2680                   |                     |          |
| 20              | QPSK       | 1       | 0         | 22.17                 | 22.13                        | 22.06                    | 21.74                         | 21.87                  | 22.7                | 0        |
| 20              | QPSK       | 1       | 49        | 22.11                 | 21.92                        | 21.91                    | 21.46                         | 21.82                  |                     |          |
| 20              | QPSK       | 1       | 99        | 22.12                 | 21.94                        | 21.92                    | 21.43                         | 21.92                  |                     |          |
| 20              | QPSK       | 50      | 0         | 21.98                 | 21.82                        | 21.86                    | 21.48                         | 21.71                  | 22.7                | 0        |
| 20              | QPSK       | 50      | 24        | 22.05                 | 21.88                        | 21.89                    | 21.46                         | 21.78                  |                     |          |
| 20              | QPSK       | 50      | 50        | 21.99                 | 21.85                        | 21.83                    | 21.44                         | 21.75                  |                     |          |
| 20              | QPSK       | 100     | 0         | 22.07                 | 21.90                        | 21.92                    | 21.51                         | 21.80                  | 22.7                | 0        |
| 20              | 16QAM      | 1       | 0         | 22.10                 | 22.12                        | 22.12                    | 21.77                         | 21.90                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 22.12                 | 21.97                        | 21.93                    | 21.51                         | 21.85                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 22.08                 | 21.97                        | 21.93                    | 21.53                         | 21.88                  | 22.7                | 0        |
| 20              | 16QAM      | 50      | 0         | 21.99                 | 21.83                        | 21.89                    | 21.46                         | 21.72                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 22.04                 | 21.89                        | 21.91                    | 21.48                         | 21.78                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 21.98                 | 21.86                        | 21.82                    | 21.45                         | 21.76                  | 22.7                | 0        |
| 20              | 16QAM      | 100     | 0         | 22.08                 | 21.93                        | 21.91                    | 21.55                         | 21.81                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 21.92                 | 21.81                        | 21.79                    | 21.51                         | 21.62                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 21.92                 | 21.69                        | 21.66                    | 21.32                         | 21.65                  | 22.7                | 0        |
| 20              | 64QAM      | 1       | 99        | 21.91                 | 21.71                        | 21.67                    | 21.22                         | 21.71                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 22.03                 | 21.85                        | 21.90                    | 21.52                         | 21.78                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 22.08                 | 21.92                        | 21.92                    | 21.55                         | 21.84                  | 22.7                | 0        |
| 20              | 64QAM      | 50      | 50        | 22.03                 | 21.89                        | 21.85                    | 21.52                         | 21.80                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 22.03                 | 21.90                        | 21.88                    | 21.53                         | 21.77                  |                     |          |
| 20              | 256QAM     | 1       | 0         | 20.94                 | 20.95                        | 21.01                    | 20.90                         | 20.95                  | 21.7                | 1        |
| 20              | 256QAM     | 1       | 49        | 20.68                 | 20.65                        | 20.80                    | 20.70                         | 20.70                  |                     |          |
| 20              | 256QAM     | 1       | 99        | 20.72                 | 20.67                        | 20.76                    | 20.66                         | 20.64                  |                     |          |
| 20              | 256QAM     | 50      | 0         | 20.88                 | 20.86                        | 20.98                    | 20.89                         | 20.89                  | 21.7                | 1        |
| 20              | 256QAM     | 50      | 24        | 20.92                 | 20.89                        | 21.00                    | 20.90                         | 20.89                  |                     |          |
| 20              | 256QAM     | 50      | 50        | 20.80                 | 20.80                        | 20.93                    | 20.80                         | 20.88                  |                     |          |
| 20              | 256QAM     | 100     | 0         | 20.83                 | 20.80                        | 20.99                    | 20.81                         | 20.83                  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |            |         |           | 39725                 | 40173                        | 40620                    | 41068                         | 41515                  |                     |          |
| Frequency (MHz) |            |         |           | 2503.5                | 2548.3                       | 2593                     | 2637.8                        | 2682.5                 | 22.7                | 0        |
| 15              | QPSK       | 1       | 0         | 22.15                 | 22.09                        | 22.00                    | 21.73                         | 21.87                  |                     |          |
| 15              | QPSK       | 1       | 37        | 22.03                 | 21.84                        | 21.81                    | 21.42                         | 21.82                  | 22.7                | 0        |
| 15              | QPSK       | 1       | 74        | 22.08                 | 21.85                        | 21.86                    | 21.35                         | 21.87                  |                     |          |
| 15              | QPSK       | 36      | 0         | 21.96                 | 21.78                        | 21.76                    | 21.38                         | 21.64                  |                     |          |
| 15              | QPSK       | 36      | 20        | 21.97                 | 21.78                        | 21.87                    | 21.39                         | 21.70                  | 22.7                | 0        |
| 15              | QPSK       | 36      | 39        | 21.90                 | 21.82                        | 21.73                    | 21.43                         | 21.66                  |                     |          |
| 15              | QPSK       | 75      | 0         | 22.01                 | 21.82                        | 21.89                    | 21.48                         | 21.73                  |                     |          |
| 15              | 16QAM      | 1       | 0         | 22.08                 | 22.04                        | 22.11                    | 21.77                         | 21.90                  | 22.7                | 0        |
| 15              | 16QAM      | 1       | 37        | 22.03                 | 21.97                        | 21.93                    | 21.47                         | 21.84                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 22.02                 | 21.96                        | 21.86                    | 21.49                         | 21.80                  |                     |          |
| 15              | 16QAM      | 36      | 0         | 21.99                 | 21.75                        | 21.89                    | 21.36                         | 21.66                  | 22.7                | 0        |
| 15              | 16QAM      | 36      | 20        | 22.01                 | 21.84                        | 21.86                    | 21.38                         | 21.68                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 21.91                 | 21.82                        | 21.72                    | 21.42                         | 21.74                  |                     |          |
| 15              | 16QAM      | 75      | 0         | 22.04                 | 21.91                        | 21.86                    | 21.53                         | 21.75                  | 22.7                | 0        |
| 15              | 64QAM      | 1       | 0         | 21.89                 | 21.81                        | 21.79                    | 21.48                         | 21.54                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 21.88                 | 21.66                        | 21.60                    | 21.31                         | 21.57                  |                     |          |
| 15              | 64QAM      | 1       | 74        | 21.86                 | 21.68                        | 21.67                    | 21.21                         | 21.65                  | 22.7                | 0        |
| 15              | 64QAM      | 36      | 0         | 21.99                 | 21.76                        | 21.84                    | 21.52                         | 21.74                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 21.98                 | 21.89                        | 21.85                    | 21.48                         | 21.75                  |                     |          |
| 15              | 64QAM      | 36      | 39        | 21.96                 | 21.84                        | 21.85                    | 21.43                         | 21.72                  | 22.7                | 0        |
| 15              | 64QAM      | 75      | 0         | 21.99                 | 21.84                        | 21.83                    | 21.44                         | 21.73                  |                     |          |

|                 |        |    |    |        |        |       |         |        |                     |          |
|-----------------|--------|----|----|--------|--------|-------|---------|--------|---------------------|----------|
| 15              | 256QAM | 1  | 0  | 20.93  | 20.91  | 20.91 | 20.88   | 20.89  | 21.7                | 1        |
| 15              | 256QAM | 1  | 37 | 20.68  | 20.62  | 20.73 | 20.70   | 20.60  |                     |          |
| 15              | 256QAM | 1  | 74 | 20.67  | 20.63  | 20.71 | 20.65   | 20.64  |                     |          |
| 15              | 256QAM | 36 | 0  | 20.78  | 20.86  | 20.94 | 20.85   | 20.83  | 21.7                | 1        |
| 15              | 256QAM | 36 | 20 | 20.87  | 20.82  | 20.91 | 20.80   | 20.88  |                     |          |
| 15              | 256QAM | 36 | 39 | 20.75  | 20.80  | 20.87 | 20.74   | 20.86  |                     |          |
| 15              | 256QAM | 75 | 0  | 20.78  | 20.74  | 20.98 | 20.75   | 20.79  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 39700  | 40160  | 40620 | 41080   | 41540  |                     |          |
| Frequency (MHz) |        |    |    | 2501   | 2547   | 2593  | 2639    | 2685   |                     |          |
| 10              | QPSK   | 1  | 0  | 22.09  | 22.07  | 21.96 | 21.68   | 21.81  | 22.7                | 0        |
| 10              | QPSK   | 1  | 25 | 22.06  | 21.92  | 21.81 | 21.41   | 21.72  |                     |          |
| 10              | QPSK   | 1  | 49 | 22.10  | 21.84  | 21.86 | 21.41   | 21.85  |                     |          |
| 10              | QPSK   | 25 | 0  | 21.93  | 21.80  | 21.81 | 21.41   | 21.71  | 22.7                | 0        |
| 10              | QPSK   | 25 | 12 | 21.96  | 21.87  | 21.83 | 21.46   | 21.77  |                     |          |
| 10              | QPSK   | 25 | 25 | 21.93  | 21.85  | 21.77 | 21.37   | 21.73  |                     |          |
| 10              | QPSK   | 50 | 0  | 22.05  | 21.85  | 21.89 | 21.41   | 21.70  | 22.7                | 0        |
| 10              | 16QAM  | 1  | 0  | 22.08  | 22.11  | 22.07 | 21.76   | 21.88  |                     |          |
| 10              | 16QAM  | 1  | 25 | 22.11  | 21.90  | 21.91 | 21.42   | 21.75  |                     |          |
| 10              | 16QAM  | 1  | 49 | 22.05  | 21.87  | 21.93 | 21.48   | 21.87  | 22.7                | 0        |
| 10              | 16QAM  | 25 | 0  | 21.89  | 21.73  | 21.83 | 21.41   | 21.70  |                     |          |
| 10              | 16QAM  | 25 | 12 | 22.00  | 21.87  | 21.89 | 21.38   | 21.70  |                     |          |
| 10              | 16QAM  | 25 | 25 | 21.93  | 21.81  | 21.75 | 21.37   | 21.66  | 22.7                | 0        |
| 10              | 16QAM  | 50 | 0  | 22.01  | 21.87  | 21.83 | 21.54   | 21.77  |                     |          |
| 10              | 64QAM  | 1  | 0  | 21.83  | 21.80  | 21.73 | 21.47   | 21.60  |                     |          |
| 10              | 64QAM  | 1  | 25 | 21.91  | 21.64  | 21.62 | 21.22   | 21.59  | 22.7                | 0        |
| 10              | 64QAM  | 1  | 49 | 21.90  | 21.63  | 21.59 | 21.18   | 21.71  |                     |          |
| 10              | 64QAM  | 25 | 0  | 21.98  | 21.80  | 21.85 | 21.43   | 21.75  |                     |          |
| 10              | 64QAM  | 25 | 12 | 21.99  | 21.86  | 21.88 | 21.55   | 21.81  | 22.7                | 0        |
| 10              | 64QAM  | 25 | 25 | 22.01  | 21.79  | 21.76 | 21.52   | 21.75  |                     |          |
| 10              | 64QAM  | 50 | 0  | 21.93  | 21.82  | 21.80 | 21.47   | 21.77  |                     |          |
| 10              | 256QAM | 1  | 0  | 20.85  | 20.90  | 21.01 | 20.88   | 20.95  | 21.7                | 1        |
| 10              | 256QAM | 1  | 25 | 20.60  | 20.64  | 20.75 | 20.64   | 20.66  |                     |          |
| 10              | 256QAM | 1  | 49 | 20.62  | 20.58  | 20.76 | 20.56   | 20.60  |                     |          |
| 10              | 256QAM | 25 | 0  | 20.87  | 20.78  | 20.88 | 20.86   | 20.85  | 21.7                | 1        |
| 10              | 256QAM | 25 | 12 | 20.92  | 20.81  | 20.99 | 20.90   | 20.80  |                     |          |
| 10              | 256QAM | 25 | 25 | 20.74  | 20.80  | 20.88 | 20.77   | 20.80  |                     |          |
| 10              | 256QAM | 50 | 0  | 20.76  | 20.75  | 20.95 | 20.75   | 20.83  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 39675  | 40148  | 40620 | 41093   | 41565  |                     |          |
| Frequency (MHz) |        |    |    | 2498.5 | 2545.8 | 2593  | 2640.30 | 2687.5 |                     |          |
| 5               | QPSK   | 1  | 0  | 22.16  | 22.08  | 21.97 | 21.71   | 21.87  | 22.7                | 0        |
| 5               | QPSK   | 1  | 12 | 22.07  | 21.88  | 21.89 | 21.43   | 21.80  |                     |          |
| 5               | QPSK   | 1  | 24 | 22.08  | 21.84  | 21.84 | 21.39   | 21.85  |                     |          |
| 5               | QPSK   | 12 | 0  | 21.95  | 21.79  | 21.85 | 21.46   | 21.69  | 22.7                | 0        |
| 5               | QPSK   | 12 | 7  | 22.04  | 21.87  | 21.89 | 21.40   | 21.77  |                     |          |
| 5               | QPSK   | 12 | 13 | 21.96  | 21.82  | 21.81 | 21.42   | 21.66  |                     |          |
| 5               | QPSK   | 25 | 0  | 21.98  | 21.82  | 21.92 | 21.45   | 21.79  | 22.7                | 0        |
| 5               | 16QAM  | 1  | 0  | 22.03  | 22.03  | 22.08 | 21.68   | 21.90  |                     |          |
| 5               | 16QAM  | 1  | 12 | 22.08  | 21.96  | 21.83 | 21.45   | 21.82  |                     |          |
| 5               | 16QAM  | 1  | 24 | 22.03  | 21.87  | 21.83 | 21.52   | 21.80  | 22.7                | 0        |
| 5               | 16QAM  | 12 | 0  | 21.95  | 21.81  | 21.87 | 21.45   | 21.64  |                     |          |
| 5               | 16QAM  | 12 | 7  | 21.98  | 21.83  | 21.84 | 21.45   | 21.71  |                     |          |
| 5               | 16QAM  | 12 | 13 | 21.98  | 21.79  | 21.80 | 21.41   | 21.74  | 22.7                | 0        |
| 5               | 16QAM  | 25 | 0  | 22.01  | 21.93  | 21.83 | 21.50   | 21.79  |                     |          |
| 5               | 64QAM  | 1  | 0  | 21.88  | 21.75  | 21.75 | 21.47   | 21.62  |                     |          |
| 5               | 64QAM  | 1  | 12 | 21.86  | 21.65  | 21.58 | 21.32   | 21.60  | 22.7                | 0        |
| 5               | 64QAM  | 1  | 24 | 21.83  | 21.70  | 21.60 | 21.15   | 21.68  |                     |          |



# FCC SAR TEST REPORT

Report No. : FA041658-01A

|   |        |    |    |       |       |       |       |       |      |   |
|---|--------|----|----|-------|-------|-------|-------|-------|------|---|
| 5 | 64QAM  | 12 | 0  | 21.94 | 21.81 | 21.84 | 21.49 | 21.74 | 22.7 | 0 |
| 5 | 64QAM  | 12 | 7  | 22.03 | 21.86 | 21.83 | 21.52 | 21.76 |      |   |
| 5 | 64QAM  | 12 | 13 | 21.94 | 21.86 | 21.81 | 21.43 | 21.72 |      |   |
| 5 | 64QAM  | 25 | 0  | 21.98 | 21.82 | 21.79 | 21.48 | 21.67 |      |   |
| 5 | 256QAM | 1  | 0  | 20.86 | 20.94 | 20.94 | 20.85 | 20.90 | 21.7 | 1 |
| 5 | 256QAM | 1  | 12 | 20.58 | 20.61 | 20.75 | 20.70 | 20.65 |      |   |
| 5 | 256QAM | 1  | 24 | 20.65 | 20.61 | 20.67 | 20.60 | 20.54 |      |   |
| 5 | 256QAM | 12 | 0  | 20.81 | 20.86 | 20.92 | 20.87 | 20.86 | 21.7 | 1 |
| 5 | 256QAM | 12 | 7  | 20.84 | 20.84 | 20.96 | 20.87 | 20.88 |      |   |
| 5 | 256QAM | 12 | 13 | 20.78 | 20.70 | 20.83 | 20.73 | 20.82 |      |   |
| 5 | 256QAM | 25 | 0  | 20.73 | 20.75 | 20.94 | 20.74 | 20.78 |      |   |

**Ant 4**
**<LTE Band 48>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Low Middle Ch. / Freq. | Power High Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|------------------------------|-------------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 55340                 | 55830                        | 56150                         | 56640                  | 19.5                | 0        |
| Frequency (MHz) |            |         |           | 3560                  | 3609                         | 3641                          | 3690                   |                     |          |
| 20              | QPSK       | 1       | 0         | 19.38                 | 19.42                        | 19.47                         | 19.50                  | 19.5                | 0        |
| 20              | QPSK       | 1       | 49        | 19.29                 | 19.33                        | 19.33                         | 19.46                  |                     |          |
| 20              | QPSK       | 1       | 99        | 19.20                 | 19.23                        | 19.20                         | 19.32                  |                     |          |
| 20              | QPSK       | 50      | 0         | 18.27                 | 18.31                        | 18.33                         | 18.44                  | 18.5                | 1        |
| 20              | QPSK       | 50      | 24        | 18.32                 | 18.35                        | 18.27                         | 18.43                  |                     |          |
| 20              | QPSK       | 50      | 50        | 18.22                 | 18.23                        | 18.22                         | 18.36                  |                     |          |
| 20              | QPSK       | 100     | 0         | 18.29                 | 18.32                        | 18.22                         | 18.45                  | 18.5                | 1        |
| 20              | 16QAM      | 1       | 0         | 18.30                 | 18.34                        | 18.39                         | 18.49                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 18.15                 | 18.19                        | 18.20                         | 18.36                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 18.07                 | 18.10                        | 18.07                         | 18.25                  | 17.5                | 2        |
| 20              | 16QAM      | 50      | 0         | 17.30                 | 17.31                        | 17.34                         | 17.46                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 17.32                 | 17.37                        | 17.28                         | 17.48                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 17.25                 | 17.25                        | 17.24                         | 17.41                  | 17.5                | 2        |
| 20              | 16QAM      | 100     | 0         | 17.31                 | 17.32                        | 17.22                         | 17.46                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 16.98                 | 17.02                        | 17.04                         | 17.20                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 16.89                 | 16.93                        | 16.94                         | 17.09                  | 17.5                | 2        |
| 20              | 64QAM      | 1       | 99        | 16.81                 | 16.82                        | 16.80                         | 16.96                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 16.32                 | 16.35                        | 16.35                         | 16.48                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 16.31                 | 16.32                        | 16.27                         | 16.48                  | 16.5                | 3        |
| 20              | 64QAM      | 50      | 50        | 16.23                 | 16.24                        | 16.24                         | 16.41                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 16.31                 | 16.33                        | 16.25                         | 16.49                  |                     |          |
| 20              | 256QAM     | 1       | 0         | 14.61                 | 14.59                        | 14.58                         | 14.52                  | 15.5                | 3        |
| 20              | 256QAM     | 1       | 49        | 14.56                 | 14.48                        | 14.54                         | 14.49                  |                     |          |
| 20              | 256QAM     | 1       | 99        | 14.67                 | 14.67                        | 14.66                         | 14.58                  |                     |          |
| 20              | 256QAM     | 50      | 0         | 14.83                 | 14.75                        | 14.73                         | 14.81                  | 14.5                | 4        |
| 20              | 256QAM     | 50      | 24        | 14.91                 | 14.91                        | 14.84                         | 14.87                  |                     |          |
| 20              | 256QAM     | 50      | 50        | 14.89                 | 14.81                        | 14.86                         | 14.85                  |                     |          |
| 20              | 256QAM     | 100     | 0         | 14.86                 | 14.81                        | 14.77                         | 14.83                  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |            |         |           | 55315                 | 55820                        | 56160                         | 56665                  |                     |          |
| Frequency (MHz) |            |         |           | 3557.5                | 3608                         | 3642                          | 3692.5                 | 19.5                | 0        |
| 15              | QPSK       | 1       | 0         | 19.28                 | 19.40                        | 19.46                         | 19.45                  |                     |          |
| 15              | QPSK       | 1       | 37        | 19.24                 | 19.30                        | 19.27                         | 19.46                  |                     |          |
| 15              | QPSK       | 1       | 74        | 19.17                 | 19.15                        | 19.15                         | 19.28                  | 18.5                | 1        |
| 15              | QPSK       | 36      | 0         | 18.27                 | 18.28                        | 18.25                         | 18.39                  |                     |          |
| 15              | QPSK       | 36      | 20        | 18.24                 | 18.33                        | 18.25                         | 18.38                  |                     |          |
| 15              | QPSK       | 36      | 39        | 18.17                 | 18.17                        | 18.18                         | 18.34                  | 18.5                | 1        |
| 15              | QPSK       | 75      | 0         | 18.27                 | 18.24                        | 18.20                         | 18.39                  |                     |          |
| 15              | 16QAM      | 1       | 0         | 18.28                 | 18.31                        | 18.35                         | 18.46                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 18.10                 | 18.13                        | 18.19                         | 18.29                  | 18.5                | 1        |
| 15              | 16QAM      | 1       | 74        | 17.98                 | 18.01                        | 18.06                         | 18.23                  |                     |          |
| 15              | 16QAM      | 36      | 0         | 17.25                 | 17.24                        | 17.32                         | 17.46                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 17.29                 | 17.30                        | 17.18                         | 17.43                  | 17.5                | 2        |
| 15              | 16QAM      | 36      | 39        | 17.22                 | 17.24                        | 17.14                         | 17.39                  |                     |          |
| 15              | 16QAM      | 75      | 0         | 17.23                 | 17.25                        | 17.22                         | 17.41                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 16.93                 | 17.00                        | 16.95                         | 17.19                  | 17.5                | 2        |
| 15              | 64QAM      | 1       | 37        | 16.83                 | 16.91                        | 16.84                         | 17.01                  |                     |          |
| 15              | 64QAM      | 1       | 74        | 16.80                 | 16.79                        | 16.73                         | 16.96                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 16.27                 | 16.32                        | 16.34                         | 16.47                  | 16.5                | 3        |
| 15              | 64QAM      | 36      | 20        | 16.28                 | 16.24                        | 16.26                         | 16.44                  |                     |          |
| 15              | 64QAM      | 36      | 39        | 16.22                 | 16.19                        | 16.20                         | 16.37                  |                     |          |



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|                 |        |    |    |        |        |        |        |                        |             |
|-----------------|--------|----|----|--------|--------|--------|--------|------------------------|-------------|
| 15              | 64QAM  | 75 | 0  | 16.29  | 16.32  | 16.24  | 16.47  | 15.5                   | 3           |
| 15              | 256QAM | 1  | 0  | 14.51  | 14.49  | 14.51  | 14.49  |                        |             |
| 15              | 256QAM | 1  | 37 | 14.52  | 14.44  | 14.46  | 14.46  |                        |             |
| 15              | 256QAM | 1  | 74 | 14.67  | 14.58  | 14.57  | 14.58  | 14.5                   | 4           |
| 15              | 256QAM | 36 | 0  | 14.76  | 14.65  | 14.69  | 14.76  |                        |             |
| 15              | 256QAM | 36 | 20 | 14.91  | 14.83  | 14.81  | 14.86  |                        |             |
| 15              | 256QAM | 36 | 39 | 14.89  | 14.71  | 14.80  | 14.82  |                        |             |
| 15              | 256QAM | 75 | 0  | 14.84  | 14.73  | 14.67  | 14.75  |                        |             |
| Channel         |        |    |    | 55290  | 55815  | 56165  | 56690  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |        |    |    | 3555   | 3607.5 | 3642.5 | 3695   |                        |             |
| 10              | QPSK   | 1  | 0  | 19.37  | 19.32  | 19.45  | 19.41  | 19.5                   | 0           |
| 10              | QPSK   | 1  | 25 | 19.29  | 19.32  | 19.23  | 19.39  |                        |             |
| 10              | QPSK   | 1  | 49 | 19.18  | 19.19  | 19.14  | 19.23  |                        |             |
| 10              | QPSK   | 25 | 0  | 18.18  | 18.24  | 18.29  | 18.34  | 18.5                   | 1           |
| 10              | QPSK   | 25 | 12 | 18.31  | 18.28  | 18.22  | 18.39  |                        |             |
| 10              | QPSK   | 25 | 25 | 18.18  | 18.14  | 18.15  | 18.32  |                        |             |
| 10              | QPSK   | 50 | 0  | 18.28  | 18.27  | 18.17  | 18.40  |                        |             |
| 10              | 16QAM  | 1  | 0  | 18.30  | 18.30  | 18.33  | 18.48  | 18.5                   | 1           |
| 10              | 16QAM  | 1  | 25 | 18.15  | 18.13  | 18.17  | 18.28  |                        |             |
| 10              | 16QAM  | 1  | 49 | 17.97  | 18.08  | 17.97  | 18.16  |                        |             |
| 10              | 16QAM  | 25 | 0  | 17.24  | 17.22  | 17.27  | 17.38  | 17.5                   | 2           |
| 10              | 16QAM  | 25 | 12 | 17.22  | 17.30  | 17.25  | 17.47  |                        |             |
| 10              | 16QAM  | 25 | 25 | 17.20  | 17.23  | 17.20  | 17.40  |                        |             |
| 10              | 16QAM  | 50 | 0  | 17.28  | 17.28  | 17.12  | 17.46  |                        |             |
| 10              | 64QAM  | 1  | 0  | 16.94  | 17.00  | 17.04  | 17.12  | 17.5                   | 2           |
| 10              | 64QAM  | 1  | 25 | 16.82  | 16.86  | 16.90  | 17.08  |                        |             |
| 10              | 64QAM  | 1  | 49 | 16.71  | 16.78  | 16.72  | 16.92  |                        |             |
| 10              | 64QAM  | 25 | 0  | 16.29  | 16.31  | 16.27  | 16.47  |                        |             |
| 10              | 64QAM  | 25 | 12 | 16.29  | 16.28  | 16.18  | 16.44  | 16.5                   | 3           |
| 10              | 64QAM  | 25 | 25 | 16.17  | 16.17  | 16.20  | 16.40  |                        |             |
| 10              | 64QAM  | 50 | 0  | 16.22  | 16.23  | 16.22  | 16.40  |                        |             |
| 10              | 256QAM | 1  | 0  | 14.54  | 14.56  | 14.50  | 14.47  |                        |             |
| 10              | 256QAM | 1  | 25 | 14.54  | 14.40  | 14.50  | 14.41  | 15.5                   | 3           |
| 10              | 256QAM | 1  | 49 | 14.62  | 14.66  | 14.60  | 14.58  |                        |             |
| 10              | 256QAM | 25 | 0  | 14.76  | 14.66  | 14.71  | 14.72  |                        |             |
| 10              | 256QAM | 25 | 12 | 14.82  | 14.86  | 14.75  | 14.82  | 14.5                   | 4           |
| 10              | 256QAM | 25 | 25 | 14.89  | 14.80  | 14.86  | 14.84  |                        |             |
| 10              | 256QAM | 50 | 0  | 14.76  | 14.78  | 14.74  | 14.73  |                        |             |
| Channel         |        |    |    | 55265  | 55810  | 56170  | 56715  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |        |    |    | 3552.5 | 3607   | 3643   | 3697.5 |                        |             |
| 5               | QPSK   | 1  | 0  | 19.30  | 19.34  | 19.37  | 19.49  | 19.5                   | 0           |
| 5               | QPSK   | 1  | 12 | 19.23  | 19.29  | 19.29  | 19.39  |                        |             |
| 5               | QPSK   | 1  | 24 | 19.14  | 19.13  | 19.15  | 19.23  |                        |             |
| 5               | QPSK   | 12 | 0  | 18.21  | 18.31  | 18.30  | 18.41  | 18.5                   | 1           |
| 5               | QPSK   | 12 | 7  | 18.22  | 18.27  | 18.20  | 18.42  |                        |             |
| 5               | QPSK   | 12 | 13 | 18.15  | 18.20  | 18.12  | 18.29  |                        |             |
| 5               | QPSK   | 25 | 0  | 18.23  | 18.27  | 18.12  | 18.35  |                        |             |
| 5               | 16QAM  | 1  | 0  | 18.21  | 18.28  | 18.38  | 18.46  | 18.5                   | 1           |
| 5               | 16QAM  | 1  | 12 | 18.11  | 18.10  | 18.20  | 18.29  |                        |             |
| 5               | 16QAM  | 1  | 24 | 17.99  | 18.07  | 18.07  | 18.16  |                        |             |
| 5               | 16QAM  | 12 | 0  | 17.24  | 17.26  | 17.30  | 17.37  | 17.5                   | 2           |
| 5               | 16QAM  | 12 | 7  | 17.30  | 17.34  | 17.28  | 17.47  |                        |             |
| 5               | 16QAM  | 12 | 13 | 17.24  | 17.16  | 17.22  | 17.37  |                        |             |
| 5               | 16QAM  | 25 | 0  | 17.22  | 17.30  | 17.17  | 17.36  |                        |             |
| 5               | 64QAM  | 1  | 0  | 16.92  | 16.92  | 16.99  | 17.17  | 17.5                   | 2           |
| 5               | 64QAM  | 1  | 12 | 16.84  | 16.88  | 16.84  | 17.05  |                        |             |



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|   |        |    |    |       |       |       |       |      |   |
|---|--------|----|----|-------|-------|-------|-------|------|---|
| 5 | 64QAM  | 1  | 24 | 16.74 | 16.82 | 16.72 | 16.91 | 16.5 | 3 |
| 5 | 64QAM  | 12 | 0  | 16.23 | 16.25 | 16.34 | 16.44 |      |   |
| 5 | 64QAM  | 12 | 7  | 16.27 | 16.26 | 16.26 | 16.45 |      |   |
| 5 | 64QAM  | 12 | 13 | 16.14 | 16.18 | 16.20 | 16.35 |      |   |
| 5 | 64QAM  | 25 | 0  | 16.30 | 16.31 | 16.21 | 16.47 |      |   |
| 5 | 256QAM | 1  | 0  | 14.55 | 14.51 | 14.48 | 14.48 | 15.5 | 3 |
| 5 | 256QAM | 1  | 12 | 14.50 | 14.41 | 14.47 | 14.48 |      |   |
| 5 | 256QAM | 1  | 24 | 14.63 | 14.67 | 14.61 | 14.57 |      |   |
| 5 | 256QAM | 12 | 0  | 14.78 | 14.69 | 14.73 | 14.79 | 14.5 | 4 |
| 5 | 256QAM | 12 | 7  | 14.86 | 14.84 | 14.78 | 14.83 |      |   |
| 5 | 256QAM | 12 | 13 | 14.88 | 14.77 | 14.77 | 14.77 |      |   |
| 5 | 256QAM | 25 | 0  | 14.78 | 14.74 | 14.76 | 14.83 |      |   |

## <LTE Uplink carrier aggregation>

### <Intra-band UL CA>

#### General Note:

- The device supports intra-band uplink carrier aggregation for LTE B66/B41/B48 with a maximum of two 20MHz component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre 3GPP requirement.
- The device supports uplink carrier aggregation with a maximum of two 20MHz component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre the 3GPP requirement.
- According TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.
- According TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.
- Additional SAR measurement for LTE UL CA with other DL CA combinations active were not required since the maximum output power for this configuration was not > 0.25dB higher than the maximum output power for UL CA active.

| 2CC Uplink Carrier Aggregation |             |
|--------------------------------|-------------|
| Number                         | Combination |
| 1                              | 41C         |
| 2                              | 48C         |

| CA_41C                                |             |            |         |           |         |           |               |                       |                     |                     |
|---------------------------------------|-------------|------------|---------|-----------|---------|-----------|---------------|-----------------------|---------------------|---------------------|
| Combination 20MHz+20MHz (100RB+100RB) |             |            |         |           |         |           |               |                       |                     |                     |
| PCC Channel                           | SCC Channel | Modulation | PCC     |           | SCC     |           | Total RB Size | Target MPR Level (dB) | Measured Power(dBm) | Tune up Power (dBm) |
|                                       |             |            | RB Size | RB offset | RB Size | RB offset |               |                       |                     |                     |
| 39750                                 | 39948       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | 19.5                | 21.1                |
| 40185                                 | 39987       | QPSK       | 1       | 0         | 1       | 99        | 2             | 0                     | 19.17               | 21.1                |
| 40620                                 | 40422       | QPSK       | 1       | 0         | 1       | 99        | 2             | 0                     | 19.35               | 21.1                |
| 41055                                 | 40857       | QPSK       | 1       | 0         | 1       | 99        | 2             | 0                     | 19.11               | 21.1                |
| 41490                                 | 41292       | QPSK       | 1       | 0         | 1       | 99        | 2             | 0                     | 19.35               | 21.1                |

| CA_48C                                |             |            |         |           |         |           |               |                       |                      |                     |
|---------------------------------------|-------------|------------|---------|-----------|---------|-----------|---------------|-----------------------|----------------------|---------------------|
| Combination 20MHz+20MHz (100RB+100RB) |             |            |         |           |         |           |               |                       |                      |                     |
| PCC Channel                           | SCC Channel | Modulation | PCC     |           | SCC     |           | Total RB Size | Target MPR Level (dB) | Measured Power (dBm) | Tune up Power (dBm) |
|                                       |             |            | RB Size | RB offset | RB Size | RB offset |               |                       |                      |                     |
| 55340                                 | 55538       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | 17.57                | 19.5                |
| 55830                                 | 55632       | QPSK       | 1       | 0         | 1       | 99        | 2             | 0                     | 17.48                | 19.5                |
| 56150                                 | 55952       | QPSK       | 1       | 0         | 1       | 99        | 2             | 0                     | 17.43                | 19.5                |
| 56640                                 | 56442       | QPSK       | 1       | 0         | 1       | 99        | 2             | 0                     | 17.97                | 19.5                |

**<Inter-band UL CA>**

| Inter-Band Combination |      |          |      |          |
|------------------------|------|----------|------|----------|
| ULCA                   | PCC  |          | SCC  |          |
|                        | Band | ANT port | Band | ANT port |
| 2A-4A                  | 2    | 0        | 4    | 8        |
| 2A-12A                 | 2    | 8        | 12   | 0        |
| 2A-66A                 | 2    | 8        | 66   | 0        |
| 4A-12A                 | 4    | 8        | 12   | 0        |
| 12A-66A                | 12   | 0        | 66   | 8        |

**Remark:**

1. Ant 8 for transmission only for LTE Inter-Band ULCA, and LTE anchor band of 5G NR EN-DC combination
2. When the inter-band UL CA is active the PCC and SCC power is same as standalone LTE power level and the device implements Qualcomm smart transmit will prove the PCC and SCC TER < 1, the detail verification results are included in the Part2 RF exposure report

### 13. 5G NR Output Power (Unit: dBm)

**General Note:**

1. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
  - a. For DFT-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class 3, the CP-OFDM mode will not higher than DFT-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is > not ½ dB higher than the same configuration in DFT-QPSK and the reported SAR for the DFT-QPSK configuration is ≤ 1.45 W/kg; CP-OFDM measurement is unnecessary.
  - b. For DFT-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class 3, full measurement on Pi/2 BPSK and QPSK, for 16QAM/64QAM/256QAM spot check 1RB 1offset configuration to ensure the output power will not ½ dB higher than Pi/2 BPSK and QPSK, for smaller bandwidth output power will spot check 1RB 1offset configuration at Pi/2 BPSK to ensure output power will not ½ dB higher than largest supported bandwidth.
  - c. SAR testing start with the largest channel bandwidth and measure SAR for Pi/2 BPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
  - d. 50% RB allocation for Pi/2 BPSK SAR testing follows 1RB Pi/2 BPSK allocation procedure
  - e. Pi/2 BPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
  - f. QPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in Pi/2 BPSK, also reported SAR for the Pi/2 BPSK configuration is less than 1.45 W/kg, QPSK/16QAM/64QAM/256QAM SAR testing are not required.
  - g. Smaller bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
2. Due to test setup limitations, SAR testing for NR was performed using Factory Test Mode software to establish the connection and perform SAR with 100% transmission.

#### <3GPP 38.101 MPR for EN-DC>

**Table 6.2.2-1 Maximum power reduction (MPR) for power class 3**

| Modulation |           | MPR (dB)            |                      |                      |
|------------|-----------|---------------------|----------------------|----------------------|
|            |           | Edge RB allocations | Outer RB allocations | Inner RB allocations |
| DFT-s-OFDM | Pi/2 BPSK | ≤ 3.5 <sup>1</sup>  | ≤ 1.2 <sup>1</sup>   | ≤ 0.2 <sup>1</sup>   |
|            |           | ≤ 0.5 <sup>2</sup>  | ≤ 0.5 <sup>2</sup>   | 0 <sup>2</sup>       |
|            | QPSK      | ≤ 1                 |                      | 0                    |
|            | 16 QAM    | ≤ 2                 |                      | ≤ 1                  |
|            | 64 QAM    | ≤ 2.5               |                      |                      |
| CP-OFDM    | 256 QAM   | ≤ 4.5               |                      |                      |
|            | QPSK      | ≤ 3                 |                      | ≤ 1.5                |
|            | 16 QAM    | ≤ 3                 |                      | ≤ 2                  |
|            | 64 QAM    | ≤ 3.5               |                      |                      |
|            | 256 QAM   | ≤ 6.5               |                      |                      |

NOTE 1: Applicable for UE operating in TDD mode with Pi/2 BPSK modulation and UE indicates support for UE capability *powerBoosting-pi2BPSK* and if the IE *powerBoostPi2BPSK* is set to 1 and 40 % or less slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79. The reference power of 0 dB MPR is 26 dBm.

NOTE 2: Applicable for UE operating in FDD mode, or in TDD mode in bands other than n40, n41, n77, n78 and n79 with Pi/2 BPSK modulation and if the IE *powerBoostPi2BPSK* is set to 0 and if more than 40 % of slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79.

**Table 6.2.2-2 Maximum power reduction (MPR) for power class 2**

| Modulation |           | MPR (dB)            |                      |                      |
|------------|-----------|---------------------|----------------------|----------------------|
|            |           | Edge RB allocations | Outer RB allocations | Inner RB allocations |
| DFT-s-OFDM | Pi/2 BPSK | ≤ 3.5               | ≤ 0.5                | 0                    |
|            | QPSK      | ≤ 3.5               | ≤ 1                  | 0                    |
|            | 16 QAM    | ≤ 3.5               | ≤ 2                  | ≤ 1                  |
|            | 64 QAM    | ≤ 3.5               | ≤ 2.5                |                      |
|            | 256 QAM   | ≤ 4.5               |                      |                      |
| CP-OFDM    | QPSK      | ≤ 3.5               | ≤ 3                  | ≤ 1.5                |
|            | 16 QAM    | ≤ 3.5               | ≤ 3                  | ≤ 2                  |
|            | 64 QAM    | ≤ 3.5               |                      |                      |
|            | 256 QAM   | ≤ 6.5               |                      |                      |

**<EN-DC combination and combine Total Power>**

| FR1 UL EN-DC |          |
|--------------|----------|
| ANT/RF       | Band     |
| 0 + 8        | 12A-n2A  |
| 0 + 8        | 66A-n25A |
| 0 + 8        | 2A-n41A  |
| 0 + 8        | 2C-n41A  |
| 0 + 8        | 41A-n41A |
| 0 + 8        | 41C-n41A |
| 0 + 8        | 66A-n41A |
| 8 + 0        | 2A-n66A  |
| 0 + 8        | 12A-n66A |
| 8 + 0        | 2A-n71A  |
| 8 + 0        | 2C-n71A  |
| 8 + 0        | 66A-n71A |
| 8 + 0        | 66C-n71A |

**Ant 0**
**<n66>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 344000                   | 349000                      | 354000                    | 24.0                   | 0.0         |
| Frequency (MHz) |            |         |           | 1720                     | 1745                        | 1770                      |                        |             |
| 20              | PI/2 BPSK  | 1       | 1         | 23.17                    | 23.27                       | 23.42                     |                        |             |
| 20              | PI/2 BPSK  | 1       | 53        | 23.38                    | 23.34                       | 23.45                     | 24.0                   | 0.0         |
| 20              | PI/2 BPSK  | 1       | 104       | 23.12                    | 23.17                       | 23.40                     |                        |             |
| 20              | PI/2 BPSK  | 50      | 0         | 22.73                    | 22.78                       | 23.11                     |                        |             |
| 20              | PI/2 BPSK  | 50      | 28        | 23.16                    | 23.18                       | 23.57                     | 24.0                   | 0.0         |
| 20              | PI/2 BPSK  | 50      | 56        | 22.55                    | 22.69                       | 23.08                     |                        |             |
| 20              | PI/2 BPSK  | 100     | 0         | 22.78                    | 22.79                       | 23.16                     |                        |             |
| 20              | QPSK       | 1       | 1         | 23.17                    | 23.50                       | 23.69                     | 24.0                   | 0.0         |
| 20              | QPSK       | 1       | 53        | 23.12                    | 23.48                       | 23.53                     |                        |             |
| 20              | QPSK       | 1       | 104       | 23.02                    | 23.49                       | 23.65                     |                        |             |
| 20              | QPSK       | 50      | 0         | 22.52                    | 22.52                       | 22.39                     | 24.0                   | 0.0         |
| 20              | QPSK       | 50      | 28        | 23.05                    | 23.19                       | 23.50                     |                        |             |
| 20              | QPSK       | 50      | 56        | 22.47                    | 22.48                       | 22.53                     |                        |             |
| 20              | QPSK       | 100     | 0         | 21.90                    | 22.11                       | 22.37                     | 23.0                   | 1.0         |
| 20              | 16QAM      | 1       | 1         | 22.34                    | 22.26                       | 22.66                     | 23.0                   | 1.0         |
| 20              | 64QAM      | 1       | 1         | 20.68                    | 20.94                       | 21.09                     | 21.5                   | 2.5         |
| 20              | 256QAM     | 1       | 1         | 18.75                    | 18.94                       | 18.91                     | 19.5                   | 4.5         |
| Channel         |            |         |           | 343500                   | 349000                      | 354500                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1717.5                   | 1745                        | 1772.5                    |                        |             |
| 15              | PI/2 BPSK  | 1       | 1         | 23.15                    | 23.18                       | 23.41                     | 24.0                   | 0.0         |
| Channel         |            |         |           | 343000                   | 349000                      | 355000                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1715                     | 1745                        | 1775                      |                        |             |
| 10              | PI/2 BPSK  | 1       | 1         | 23.11                    | 23.33                       | 23.55                     | 24.0                   | 0.0         |
| Channel         |            |         |           | 342500                   | 349000                      | 355500                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1712.5                   | 1745                        | 1777.5                    |                        |             |
| 5               | PI/2 BPSK  | 1       | 1         | 23.23                    | 23.34                       | 23.42                     | 24.0                   | 0.0         |

**<n71>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 134600                   | 136100                      | 137600                    | 24.0                   | 0.0         |
| Frequency (MHz) |            |         |           | 673                      | 680.5                       | 688                       |                        |             |
| 20              | PI/2 BPSK  | 1       | 1         | 23.42                    | 23.17                       | 23.21                     |                        |             |
| 20              | PI/2 BPSK  | 1       | 53        | 23.19                    | 23.16                       | 23.26                     | 24.0                   | 0.0         |
| 20              | PI/2 BPSK  | 1       | 104       | 23.06                    | 23.02                       | 22.93                     |                        |             |
| 20              | PI/2 BPSK  | 50      | 0         | 23.05                    | 23.07                       | 23.06                     |                        |             |
| 20              | PI/2 BPSK  | 50      | 28        | 23.04                    | 23.09                       | 23.08                     | 24.0                   | 0.0         |
| 20              | PI/2 BPSK  | 50      | 56        | 22.90                    | 22.99                       | 22.92                     |                        |             |
| 20              | PI/2 BPSK  | 100     | 0         | 21.50                    | 21.50                       | 23.04                     | 23.5                   | 0.5         |
| 20              | QPSK       | 1       | 1         | 23.30                    | 23.10                       | 23.18                     | 24.0                   | 0.0         |
| 20              | QPSK       | 1       | 53        | 23.09                    | 23.21                       | 23.22                     |                        |             |
| 20              | QPSK       | 1       | 104       | 23.07                    | 23.08                       | 22.96                     |                        |             |
| 20              | QPSK       | 50      | 0         | 22.22                    | 22.48                       | 22.48                     | 24.0                   | 0.0         |
| 20              | QPSK       | 50      | 28        | 23.01                    | 23.11                       | 23.01                     |                        |             |
| 20              | QPSK       | 50      | 56        | 22.36                    | 22.38                       | 22.38                     |                        |             |
| 20              | QPSK       | 100     | 0         | 22.33                    | 22.48                       | 22.45                     | 23.0                   | 1.0         |
| 20              | 16QAM      | 1       | 1         | 22.50                    | 22.35                       | 22.36                     | 23.0                   | 1.0         |
| 20              | 64QAM      | 1       | 1         | 21.44                    | 21.23                       | 21.36                     | 21.5                   | 2.5         |
| 20              | 256QAM     | 1       | 1         | 19.35                    | 19.07                       | 19.09                     | 19.5                   | 4.5         |
| Channel         |            |         |           | 134100                   | 136100                      | 138100                    | 24.0                   | 0.0         |
| Frequency (MHz) |            |         |           | 670.5                    | 680.5                       | 690.5                     |                        |             |
| 15              | PI/2 BPSK  | 1       | 1         | 23.38                    | 23.17                       | 23.21                     | 24.0                   | 0.0         |
| Channel         |            |         |           | 133600                   | 136100                      | 138600                    | 24.0                   | 0.0         |
| Frequency (MHz) |            |         |           | 668                      | 680.5                       | 693                       |                        |             |
| 10              | PI/2 BPSK  | 1       | 1         | 23.41                    | 23.16                       | 23.08                     | 24.0                   | 0.0         |
| Channel         |            |         |           | 133100                   | 136100                      | 139100                    | 24.0                   | 0.0         |
| Frequency (MHz) |            |         |           | 665.5                    | 680.5                       | 695.5                     |                        |             |
| 5               | PI/2 BPSK  | 1       | 1         | 23.40                    | 23.28                       | 23.08                     | 24.0                   | 0.0         |

**Ant 8**
**<n2>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 372000                   | 376000                      | 380000                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1860                     | 1880                        | 1900                      |                        |             |
| 20              | PI/2 BPSK  | 1       | 1         | 21.25                    | 21.11                       | 21.39                     | 22.1                   | 0.0         |
| 20              | PI/2 BPSK  | 1       | 53        | 21.34                    | 21.34                       | 21.50                     |                        |             |
| 20              | PI/2 BPSK  | 1       | 104       | 21.09                    | 21.10                       | 21.18                     |                        |             |
| 20              | PI/2 BPSK  | 50      | 0         | 21.33                    | 21.27                       | 21.40                     | 22.1                   | 0.0         |
| 20              | PI/2 BPSK  | 50      | 28        | 21.25                    | 21.29                       | 21.39                     |                        |             |
| 20              | PI/2 BPSK  | 50      | 56        | 21.33                    | 21.18                       | 21.18                     |                        |             |
| 20              | PI/2 BPSK  | 100     | 0         | 21.34                    | 21.23                       | 21.35                     | 22.1                   | 0.0         |
| 20              | QPSK       | 1       | 1         | 21.32                    | 21.14                       | 21.46                     | 22.1                   | 0.0         |
| 20              | QPSK       | 1       | 53        | 21.44                    | 21.15                       | 21.42                     |                        |             |
| 20              | QPSK       | 1       | 104       | 21.28                    | 21.19                       | 21.42                     |                        |             |
| 20              | QPSK       | 50      | 0         | 21.31                    | 21.33                       | 21.30                     | 22.1                   | 0.0         |
| 20              | QPSK       | 50      | 28        | 21.36                    | 21.14                       | 21.35                     |                        |             |
| 20              | QPSK       | 50      | 56        | 21.22                    | 21.20                       | 21.24                     |                        |             |
| 20              | QPSK       | 100     | 0         | 21.41                    | 21.23                       | 21.36                     | 22.1                   | 0.0         |
| 20              | 16QAM      | 1       | 1         | 21.50                    | 21.32                       | 21.49                     | 22.1                   | 0.0         |
| 20              | 64QAM      | 1       | 1         | 21.27                    | 21.05                       | 21.05                     | 21.6                   | 0.5         |
| 20              | 256QAM     | 1       | 1         | 19.25                    | 19.16                       | 19.25                     | 19.6                   | 2.5         |
| Channel         |            |         |           | 371500                   | 376000                      | 380500                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1857.5                   | 1880                        | 1902.5                    |                        |             |
| 15              | PI/2 BPSK  | 1       | 1         | 21.34                    | 21.09                       | 21.23                     | 22.1                   | 0.0         |
| Channel         |            |         |           | 371000                   | 376000                      | 381000                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1855                     | 1880                        | 1905                      |                        |             |
| 10              | PI/2 BPSK  | 1       | 1         | 21.30                    | 21.08                       | 21.13                     | 22.1                   | 0.0         |
| Channel         |            |         |           | 370500                   | 376000                      | 381500                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1852.5                   | 1880                        | 1907.5                    |                        |             |
| 5               | PI/2 BPSK  | 1       | 1         | 21.37                    | 21.12                       | 21.15                     | 22.1                   | 0.0         |

**<n25>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 372000                   | 376000                      | 381000                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1860                     | 1880                        | 1905                      |                        |             |
| 20              | PI/2 BPSK  | 1       | 1         | 21.31                    | 21.08                       | 21.29                     | 22.1                   | 0.0         |
| 20              | PI/2 BPSK  | 1       | 53        | 21.42                    | 21.34                       | 21.45                     |                        |             |
| 20              | PI/2 BPSK  | 1       | 104       | 21.14                    | 21.17                       | 21.26                     |                        |             |
| 20              | PI/2 BPSK  | 50      | 0         | 21.32                    | 21.22                       | 21.39                     | 22.1                   | 0.0         |
| 20              | PI/2 BPSK  | 50      | 28        | 21.28                    | 21.22                       | 21.35                     |                        |             |
| 20              | PI/2 BPSK  | 50      | 56        | 21.24                    | 21.14                       | 21.26                     |                        |             |
| 20              | PI/2 BPSK  | 100     | 0         | 21.31                    | 21.14                       | 21.32                     | 22.1                   | 0.0         |
| 20              | QPSK       | 1       | 1         | 21.41                    | 21.22                       | 21.37                     | 22.1                   | 0.0         |
| 20              | QPSK       | 1       | 53        | 21.34                    | 21.23                       | 21.36                     |                        |             |
| 20              | QPSK       | 1       | 104       | 21.26                    | 21.24                       | 21.34                     |                        |             |
| 20              | QPSK       | 50      | 0         | 21.33                    | 21.25                       | 21.35                     | 22.1                   | 0.0         |
| 20              | QPSK       | 50      | 28        | 21.32                    | 21.22                       | 21.33                     |                        |             |
| 20              | QPSK       | 50      | 56        | 21.24                    | 21.14                       | 21.26                     |                        |             |
| 20              | QPSK       | 100     | 0         | 21.32                    | 21.25                       | 21.37                     | 22.1                   | 0.0         |
| 20              | 16QAM      | 1       | 1         | 21.54                    | 21.32                       | 21.41                     | 22.1                   | 0.0         |
| 20              | 64QAM      | 1       | 1         | 21.32                    | 21.09                       | 21.15                     | 21.6                   | 0.5         |
| 20              | 256QAM     | 1       | 1         | 19.31                    | 19.16                       | 19.20                     | 19.6                   | 2.5         |
| Channel         |            |         |           | 371500                   | 376000                      | 381500                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1857.5                   | 1880                        | 1907.5                    |                        |             |
| 15              | PI/2 BPSK  | 1       | 1         | 21.39                    | 21.10                       | 21.22                     | 22.0                   | 0.0         |
| Channel         |            |         |           | 371000                   | 376000                      | 382000                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1855                     | 1880                        | 1910                      |                        |             |
| 10              | PI/2 BPSK  | 1       | 1         | 21.36                    | 21.07                       | 21.18                     | 22.0                   | 0.0         |
| Channel         |            |         |           | 370500                   | 376000                      | 382500                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1852.5                   | 1880                        | 1912.5                    |                        |             |
| 5               | PI/2 BPSK  | 1       | 1         | 21.25                    | 21.00                       | 21.09                     | 22.0                   | 0.0         |

**<n41>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 509202                   | 518598                      | 528000                    | 20.4                   | 0.0         |
| Frequency (MHz) |            |         |           | 2546.01                  | 2592.99                     | 2640                      |                        |             |
| 100             | PI/2 BPSK  | 1       | 1         | 19.00                    | 19.27                       | 19.37                     |                        |             |
| 100             | PI/2 BPSK  | 1       | 137       | 19.40                    | 19.18                       | 18.52                     | 20.4                   | 0.0         |
| 100             | PI/2 BPSK  | 1       | 271       | 18.80                    | 18.53                       | 19.05                     |                        |             |
| 100             | PI/2 BPSK  | 135     | 0         | 19.39                    | 19.34                       | 19.09                     |                        |             |
| 100             | PI/2 BPSK  | 135     | 69        | 19.46                    | 19.28                       | 18.65                     | 20.4                   | 0.0         |
| 100             | PI/2 BPSK  | 135     | 138       | 19.34                    | 18.97                       | 18.58                     |                        |             |
| 100             | PI/2 BPSK  | 270     | 0         | 19.39                    | 19.20                       | 18.90                     |                        |             |
| 100             | QPSK       | 1       | 1         | 19.11                    | 19.33                       | 19.36                     | 20.4                   | 0.0         |
| 100             | QPSK       | 1       | 137       | 19.45                    | 19.23                       | 18.59                     |                        |             |
| 100             | QPSK       | 1       | 271       | 18.86                    | 18.61                       | 19.10                     |                        |             |
| 100             | QPSK       | 135     | 0         | 19.41                    | 19.31                       | 19.07                     | 20.4                   | 0.0         |
| 100             | QPSK       | 135     | 69        | 19.41                    | 19.28                       | 18.67                     |                        |             |
| 100             | QPSK       | 135     | 138       | 19.34                    | 18.96                       | 18.58                     |                        |             |
| 100             | QPSK       | 270     | 0         | 19.38                    | 19.24                       | 18.88                     | 20.4                   | 0.0         |
| 100             | 16QAM      | 1       | 1         | 19.14                    | 19.32                       | 19.40                     | 20.4                   | 0.0         |
| 100             | 64QAM      | 1       | 1         | 18.95                    | 19.20                       | 19.28                     | 20.4                   | 0.0         |
| 100             | 256QAM     | 1       | 1         | 18.35                    | 19.32                       | 19.32                     | 20.4                   | 0.0         |
| Channel         |            |         |           | 508200                   | 518598                      | 528996                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 2541                     | 2592.99                     | 2644.98                   |                        |             |
| 90              | PI/2 BPSK  | 1       | 1         | 18.97                    | 19.20                       | 19.35                     | 20.4                   | 0.0         |
| Channel         |            |         |           | 507204                   | 518598                      | 529998                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 2536.02                  | 2592.99                     | 2649.99                   |                        |             |
| 80              | PI/2 BPSK  | 1       | 1         | 18.99                    | 19.17                       | 19.31                     | 20.4                   | 0.0         |
| Channel         |            |         |           | 505200                   | 518598                      | 531996                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 2526                     | 2592.99                     | 2659.98                   |                        |             |
| 60              | PI/2 BPSK  | 1       | 1         | 18.90                    | 19.23                       | 19.36                     | 20.4                   | 0.0         |
| Channel         |            |         |           | 504204                   | 518598                      | 532998                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 2521.02                  | 2592.99                     | 2664.99                   |                        |             |
| 50              | PI/2 BPSK  | 1       | 1         | 18.96                    | 19.18                       | 19.31                     | 20.4                   | 0.0         |
| Channel         |            |         |           | 503202                   | 518598                      | 534000                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 2516.01                  | 2592.99                     | 2670                      |                        |             |
| 40              | PI/2 BPSK  | 1       | 1         | 18.94                    | 19.27                       | 19.34                     | 20.4                   | 0.0         |
| Channel         |            |         |           | 501204                   | 518598                      | 535998                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 2506.02                  | 2592.99                     | 2679.99                   |                        |             |
| 20              | PI/2 BPSK  | 1       | 1         | 18.90                    | 19.22                       | 19.32                     | 20.4                   | 0.0         |

**<n66>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 344000                   | 349000                      | 354000                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1720                     | 1745                        | 1770                      |                        |             |
| 20              | PI/2 BPSK  | 1       | 1         | 22.30                    | 22.47                       | 22.76                     | 23.4                   | 0.0         |
| 20              | PI/2 BPSK  | 1       | 53        | 22.19                    | 22.51                       | 22.69                     |                        |             |
| 20              | PI/2 BPSK  | 1       | 104       | 22.35                    | 22.60                       | 22.75                     |                        |             |
| 20              | PI/2 BPSK  | 50      | 0         | 22.20                    | 22.53                       | 22.75                     | 23.4                   | 0.0         |
| 20              | PI/2 BPSK  | 50      | 28        | 22.17                    | 22.47                       | 22.73                     |                        |             |
| 20              | PI/2 BPSK  | 50      | 56        | 22.19                    | 22.43                       | 22.65                     |                        |             |
| 20              | PI/2 BPSK  | 100     | 0         | 22.18                    | 22.47                       | 22.73                     | 23.4                   | 0.5         |
| 20              | QPSK       | 1       | 1         | 22.26                    | 22.48                       | 22.68                     | 23.4                   | 0.0         |
| 20              | QPSK       | 1       | 53        | 22.80                    | 23.13                       | 23.37                     |                        |             |
| 20              | QPSK       | 1       | 104       | 22.33                    | 22.59                       | 22.77                     |                        |             |
| 20              | QPSK       | 50      | 0         | 22.19                    | 22.50                       | 22.72                     | 23.4                   | 0.0         |
| 20              | QPSK       | 50      | 28        | 22.17                    | 22.48                       | 22.74                     |                        |             |
| 20              | QPSK       | 50      | 56        | 22.18                    | 22.46                       | 22.70                     |                        |             |
| 20              | QPSK       | 100     | 0         | 22.19                    | 22.45                       | 22.71                     | 23.4                   | 1.0         |
| 20              | 16QAM      | 1       | 1         | 22.54                    | 22.67                       | 22.84                     | 23.4                   | 1.0         |
| 20              | 64QAM      | 1       | 1         | 21.08                    | 21.29                       | 21.50                     | 22.9                   | 2.5         |
| 20              | 256QAM     | 1       | 1         | 19.50                    | 19.66                       | 19.93                     | 20.9                   | 4.5         |
| Channel         |            |         |           | 343500                   | 349000                      | 354500                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1717.5                   | 1745                        | 1772.5                    |                        |             |
| 15              | PI/2 BPSK  | 1       | 1         | 22.28                    | 22.52                       | 22.78                     | 23.4                   | 0.0         |
| Channel         |            |         |           | 343000                   | 349000                      | 355000                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1715                     | 1745                        | 1775                      |                        |             |
| 10              | PI/2 BPSK  | 1       | 1         | 22.33                    | 22.50                       | 22.80                     | 23.4                   | 0.0         |
| Channel         |            |         |           | 342500                   | 349000                      | 355500                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1712.5                   | 1745                        | 1777.5                    |                        |             |
| 5               | PI/2 BPSK  | 1       | 1         | 22.30                    | 22.45                       | 22.71                     | 23.4                   | 0.0         |

## 14. SAR Test Results

### General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
  - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
  - b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
  - c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)\*Tune-up Scaling Factor
  - d. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result.  
The Reported TDD LTE SAR = measured SAR (W/kg)\* Tune-up Scaling Factor\* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
  - $\leq 0.8$  W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\leq 100$  MHz
  - $\leq 0.6$  W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
  - $\leq 0.4$  W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\geq 200$  MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is  $\geq 0.8$ W/kg.

### UMTS Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is  $\leq \frac{1}{4}$  dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is  $\leq 1.2$  W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than  $\frac{1}{4}$  dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

**LTE Note:**

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are  $\leq 0.8$  W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is  $> 1.45$  W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is  $> \text{not } \frac{1}{2}$  dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is  $> \text{not } \frac{1}{2}$  dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4/B5/B12/B17/B26/B38/B71 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE band 2/4/5/17/38 SAR test was covered by Band 25/66/26/12/41; according to TCB workshop, SAR test for overlapping LTE bands can be reduced if
  - a. The maximum output power, including tolerance, for the smaller band is  $\leq$  the larger band to qualify for the SAR test exclusion.
  - b. The channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band.

**5G NR Note:**

1. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
  - a. SAR testing start with the largest channel bandwidth and measure SAR for PI/2 BPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
  - b. 50% RB allocation for PI/2 BPSK SAR testing follows 1RB PI/2 BPSK allocation procedure
  - c. PI/2 BPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are  $\leq 0.8$  W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is  $> 1.45$  W/kg, the remaining required test channels must also be tested.
  - d. QPSK/16QAM/64QAM/256QAM output powers are not  $\frac{1}{2}$  dB higher than the same configuration in PI/2 BPSK, also reported SAR for the PI/2 BPSK configuration is less than 1.45 W/kg, QPSK/16QAM/64QAM/256QAM SAR testing are not required.
  - e. Smaller bandwidth output power for each RB allocation configuration for this device will not  $\frac{1}{2}$  dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is  $\leq 1.45$  W/kg, smaller bandwidth SAR testing is not required for this device
  - f. For 5G FR1 n2/n5/n12/n66/n71 the maximum bandwidth does not support three non-overlapping channels, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

## 14.1 Body SAR

### <WCDMA SAR>

| Plot No. | Band           | Mode         | Test Position | Gap (mm) | Battery   | Ch.  | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|----------------|--------------|---------------|----------|-----------|------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
|          | WCDMA II_Ant 0 | RMC 12.2Kbps | Front         | 10mm     | Battery 1 | 9400 | 1880        | 23.88               | 24.00               | 1.028                  | -0.05            | 0.623                  | 0.640                  |
|          | WCDMA II_Ant 0 | RMC 12.2Kbps | Back          | 10mm     | Battery 1 | 9400 | 1880        | 23.88               | 24.00               | 1.028                  | 0.08             | 0.693                  | 0.712                  |
| 01       | WCDMA II_Ant 0 | RMC 12.2Kbps | Back          | 10mm     | Battery 1 | 9262 | 1852.4      | 23.74               | 24.00               | 1.062                  | -0.13            | 0.749                  | 0.795                  |
|          | WCDMA II_Ant 0 | RMC 12.2Kbps | Back          | 10mm     | Battery 1 | 9538 | 1907.6      | 23.84               | 24.00               | 1.038                  | 0.11             | 0.664                  | 0.689                  |
|          | WCDMA II_Ant 0 | RMC 12.2Kbps | Right Side    | 10mm     | Battery 1 | 9400 | 1880        | 23.88               | 24.00               | 1.028                  | -0.15            | 0.280                  | 0.288                  |
|          | WCDMA II_Ant 0 | RMC 12.2Kbps | Top Side      | 10mm     | Battery 1 | 9400 | 1880        | 23.88               | 24.00               | 1.028                  | -0.19            | 0.083                  | 0.085                  |
|          | WCDMA II_Ant 0 | RMC 12.2Kbps | Bottom Side   | 10mm     | Battery 1 | 9400 | 1880        | 23.88               | 24.00               | 1.028                  | 0.06             | 0.574                  | 0.590                  |
|          | WCDMA II_Ant 0 | RMC 12.2Kbps | Back          | 10mm     | Battery 2 | 9262 | 1852.4      | 23.74               | 24.00               | 1.062                  | 0.03             | 0.660                  | 0.701                  |
|          | WCDMA IV_Ant 0 | RMC 12.2Kbps | Front         | 10mm     | Battery 1 | 1312 | 1712.4      | 18.05               | 18.60               | 1.135                  | 0.16             | 0.456                  | 0.518                  |
|          | WCDMA IV_Ant 0 | RMC 12.2Kbps | Back          | 10mm     | Battery 1 | 1312 | 1712.4      | 18.05               | 18.60               | 1.135                  | 0.04             | 0.277                  | 0.314                  |
|          | WCDMA IV_Ant 0 | RMC 12.2Kbps | Right Side    | 10mm     | Battery 1 | 1312 | 1712.4      | 18.05               | 18.60               | 1.135                  | -0.01            | 0.864                  | 0.981                  |
|          | WCDMA IV_Ant 0 | RMC 12.2Kbps | Right Side    | 10mm     | Battery 1 | 1413 | 1732.6      | 17.84               | 18.60               | 1.191                  | -0.06            | 0.605                  | 0.721                  |
|          | WCDMA IV_Ant 0 | RMC 12.2Kbps | Right Side    | 10mm     | Battery 1 | 1513 | 1752.6      | 17.77               | 18.60               | 1.211                  | 0.08             | 0.431                  | 0.522                  |
|          | WCDMA IV_Ant 0 | RMC 12.2Kbps | Top Side      | 10mm     | Battery 1 | 1312 | 1712.4      | 18.05               | 18.60               | 1.135                  | -0.17            | 0.001                  | 0.001                  |
|          | WCDMA IV_Ant 0 | RMC 12.2Kbps | Bottom Side   | 10mm     | Battery 1 | 1312 | 1712.4      | 18.05               | 18.60               | 1.135                  | 0.15             | 0.128                  | 0.145                  |
| 02       | WCDMA IV_Ant 0 | RMC 12.2Kbps | Right Side    | 10mm     | Battery 2 | 1312 | 1712.4      | 18.05               | 18.60               | 1.135                  | -0.07            | 0.873                  | 0.991                  |
|          | WCDMA V_Ant 0  | RMC 12.2Kbps | Front         | 10mm     | Battery 1 | 4182 | 836.4       | 23.78               | 24.00               | 1.052                  | 0.05             | 0.773                  | 0.813                  |
|          | WCDMA V_Ant 0  | RMC 12.2Kbps | Front         | 10mm     | Battery 1 | 4132 | 826.4       | 23.77               | 24.00               | 1.054                  | 0.09             | 0.795                  | 0.838                  |
|          | WCDMA V_Ant 0  | RMC 12.2Kbps | Front         | 10mm     | Battery 1 | 4233 | 846.6       | 23.70               | 24.00               | 1.072                  | -0.02            | 0.763                  | 0.818                  |
|          | WCDMA V_Ant 0  | RMC 12.2Kbps | Back          | 10mm     | Battery 1 | 4182 | 836.4       | 23.78               | 24.00               | 1.052                  | 0.01             | 0.841                  | 0.885                  |
| 03       | WCDMA V_Ant 0  | RMC 12.2Kbps | Back          | 10mm     | Battery 1 | 4132 | 826.4       | 23.77               | 24.00               | 1.054                  | -0.13            | 0.864                  | 0.911                  |
|          | WCDMA V_Ant 0  | RMC 12.2Kbps | Back          | 10mm     | Battery 1 | 4233 | 846.6       | 23.70               | 24.00               | 1.072                  | 0.09             | 0.829                  | 0.888                  |
|          | WCDMA V_Ant 0  | RMC 12.2Kbps | Right Side    | 10mm     | Battery 1 | 4182 | 836.4       | 23.78               | 24.00               | 1.052                  | 0.09             | 0.126                  | 0.133                  |
|          | WCDMA V_Ant 0  | RMC 12.2Kbps | Top Side      | 10mm     | Battery 1 | 4182 | 836.4       | 23.78               | 24.00               | 1.052                  | -0.06            | 0.551                  | 0.580                  |
|          | WCDMA V_Ant 0  | RMC 12.2Kbps | Bottom Side   | 10mm     | Battery 1 | 4182 | 836.4       | 23.78               | 24.00               | 1.052                  | -0.01            | 0.479                  | 0.504                  |
|          | WCDMA V_Ant 0  | RMC 12.2Kbps | Back          | 10mm     | Battery 2 | 4132 | 826.4       | 23.77               | 24.00               | 1.054                  | 0.1              | 0.782                  | 0.825                  |



## &lt;FDD LTE SAR&gt;

| Plot No. | Band              | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Battery   | Ch.   | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-------------------|----------|------------|---------|-----------|---------------|----------|-----------|-------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
|          | LTE Band 2_Ant 8  | 20M      | QPSK       | 1       | 99        | Front         | 10mm     | Battery 1 | 18700 | 1860        | 21.29               | 22.30               | 1.262                  | 0.05             | 0.240                  | 0.303                  |
|          | LTE Band 2_Ant 8  | 20M      | QPSK       | 50      | 50        | Front         | 10mm     | Battery 1 | 18700 | 1860        | 21.40               | 22.30               | 1.230                  | 0.06             | 0.251                  | 0.309                  |
|          | LTE Band 2_Ant 8  | 20M      | QPSK       | 1       | 99        | Back          | 10mm     | Battery 1 | 18700 | 1860        | 21.29               | 22.30               | 1.262                  | 0.17             | 0.410                  | 0.518                  |
|          | LTE Band 2_Ant 8  | 20M      | QPSK       | 50      | 50        | Back          | 10mm     | Battery 1 | 18700 | 1860        | 21.40               | 22.30               | 1.230                  | 0.07             | 0.432                  | 0.532                  |
|          | LTE Band 2_Ant 8  | 20M      | QPSK       | 1       | 99        | Top Side      | 10mm     | Battery 1 | 18700 | 1860        | 21.29               | 22.30               | 1.262                  | 0.13             | 0.695                  | 0.876                  |
|          | LTE Band 2_Ant 8  | 20M      | QPSK       | 1       | 99        | Top Side      | 10mm     | Battery 1 | 18900 | 1880        | 21.19               | 22.30               | 1.291                  | 0.07             | 0.627                  | 0.810                  |
|          | LTE Band 2_Ant 8  | 20M      | QPSK       | 1       | 99        | Top Side      | 10mm     | Battery 1 | 19100 | 1900        | 21.22               | 22.30               | 1.282                  | 0.12             | 0.586                  | 0.751                  |
| 04       | LTE Band 2_Ant 8  | 20M      | QPSK       | 50      | 50        | Top Side      | 10mm     | Battery 1 | 18700 | 1860        | 21.40               | 22.30               | 1.230                  | -0.07            | 0.743                  | 0.914                  |
|          | LTE Band 2_Ant 8  | 20M      | QPSK       | 50      | 50        | Top Side      | 10mm     | Battery 1 | 18900 | 1880        | 21.30               | 22.30               | 1.259                  | 0                | 0.644                  | 0.811                  |
|          | LTE Band 2_Ant 8  | 20M      | QPSK       | 50      | 50        | Top Side      | 10mm     | Battery 1 | 19100 | 1900        | 21.39               | 22.30               | 1.233                  | 0.16             | 0.597                  | 0.736                  |
|          | LTE Band 2_Ant 8  | 20M      | QPSK       | 100     | 0         | Top Side      | 10mm     | Battery 1 | 18700 | 1860        | 21.37               | 22.30               | 1.239                  | 0.05             | 0.736                  | 0.912                  |
|          | LTE Band 2_Ant 8  | 20M      | QPSK       | 50      | 50        | Top Side      | 10mm     | Battery 2 | 18700 | 1860        | 21.40               | 22.30               | 1.230                  | 0.17             | 0.723                  | 0.889                  |
|          | LTE Band 7_Ant 0  | 20M      | QPSK       | 1       | 99        | Front         | 10mm     | Battery 1 | 20850 | 2510        | 18.30               | 18.90               | 1.148                  | 0.04             | 0.259                  | 0.297                  |
|          | LTE Band 7_Ant 0  | 20M      | QPSK       | 50      | 50        | Front         | 10mm     | Battery 1 | 20850 | 2510        | 18.43               | 18.90               | 1.114                  | -0.05            | 0.261                  | 0.291                  |
|          | LTE Band 7_Ant 0  | 20M      | QPSK       | 1       | 99        | Back          | 10mm     | Battery 1 | 20850 | 2510        | 18.30               | 18.90               | 1.148                  | 0.02             | 0.272                  | 0.312                  |
|          | LTE Band 7_Ant 0  | 20M      | QPSK       | 50      | 50        | Back          | 10mm     | Battery 1 | 20850 | 2510        | 18.43               | 18.90               | 1.114                  | -0.03            | 0.300                  | 0.334                  |
|          | LTE Band 7_Ant 0  | 20M      | QPSK       | 1       | 99        | Right Side    | 10mm     | Battery 1 | 20850 | 2510        | 18.30               | 18.90               | 1.148                  | 0                | 0.864                  | 0.992                  |
|          | LTE Band 7_Ant 0  | 20M      | QPSK       | 1       | 99        | Right Side    | 10mm     | Battery 1 | 21100 | 2535        | 18.29               | 18.90               | 1.151                  | -0.01            | 0.638                  | 0.734                  |
|          | LTE Band 7_Ant 0  | 20M      | QPSK       | 1       | 99        | Right Side    | 10mm     | Battery 1 | 21350 | 2560        | 18.28               | 18.90               | 1.153                  | -0.02            | 0.289                  | 0.333                  |
| 05       | LTE Band 7_Ant 0  | 20M      | QPSK       | 50      | 50        | Right Side    | 10mm     | Battery 1 | 20850 | 2510        | 18.43               | 18.90               | 1.114                  | -0.05            | 0.893                  | 0.995                  |
|          | LTE Band 7_Ant 0  | 20M      | QPSK       | 50      | 50        | Right Side    | 10mm     | Battery 1 | 21100 | 2535        | 18.23               | 18.90               | 1.167                  | 0.01             | 0.735                  | 0.858                  |
|          | LTE Band 7_Ant 0  | 20M      | QPSK       | 50      | 50        | Right Side    | 10mm     | Battery 1 | 21350 | 2560        | 18.21               | 18.90               | 1.172                  | 0.02             | 0.351                  | 0.411                  |
|          | LTE Band 7_Ant 0  | 20M      | QPSK       | 100     | 0         | Right Side    | 10mm     | Battery 1 | 20850 | 2510        | 18.36               | 18.90               | 1.132                  | 0.01             | 0.877                  | 0.993                  |
|          | LTE Band 7_Ant 0  | 20M      | QPSK       | 1       | 99        | Top Side      | 10mm     | Battery 1 | 20850 | 2510        | 18.30               | 18.90               | 1.148                  | 0                | 0.063                  | 0.072                  |
|          | LTE Band 7_Ant 0  | 20M      | QPSK       | 50      | 50        | Top Side      | 10mm     | Battery 1 | 20850 | 2510        | 18.43               | 18.90               | 1.114                  | -0.02            | 0.077                  | 0.086                  |
|          | LTE Band 7_Ant 0  | 20M      | QPSK       | 1       | 99        | Bottom Side   | 10mm     | Battery 1 | 20850 | 2510        | 18.30               | 18.90               | 1.148                  | 0.06             | 0.412                  | 0.473                  |
|          | LTE Band 7_Ant 0  | 20M      | QPSK       | 50      | 50        | Bottom Side   | 10mm     | Battery 1 | 20850 | 2510        | 18.43               | 18.90               | 1.114                  | -0.05            | 0.363                  | 0.404                  |
|          | LTE Band 7_Ant 0  | 20M      | QPSK       | 50      | 50        | Right Side    | 10mm     | Battery 2 | 20850 | 2510        | 18.43               | 18.90               | 1.114                  | 0.03             | 0.884                  | 0.985                  |
|          | LTE Band 12_Ant 0 | 10M      | QPSK       | 1       | 49        | Front         | 10mm     | Battery 1 | 23095 | 707.5       | 23.72               | 24.00               | 1.067                  | 0.15             | 0.786                  | 0.838                  |
|          | LTE Band 12_Ant 0 | 10M      | QPSK       | 25      | 25        | Front         | 10mm     | Battery 1 | 23095 | 707.5       | 22.92               | 23.00               | 1.019                  | -0.02            | 0.632                  | 0.644                  |
|          | LTE Band 12_Ant 0 | 10M      | QPSK       | 50      | 0         | Front         | 10mm     | Battery 1 | 23095 | 707.5       | 22.93               | 23.00               | 1.016                  | 0.18             | 0.634                  | 0.644                  |
| 06       | LTE Band 12_Ant 0 | 10M      | QPSK       | 1       | 49        | Back          | 10mm     | Battery 1 | 23095 | 707.5       | 23.72               | 24.00               | 1.067                  | -0.1             | 0.797                  | 0.850                  |
|          | LTE Band 12_Ant 0 | 10M      | QPSK       | 25      | 25        | Back          | 10mm     | Battery 1 | 23095 | 707.5       | 22.92               | 23.00               | 1.019                  | -0.06            | 0.652                  | 0.664                  |
|          | LTE Band 12_Ant 0 | 10M      | QPSK       | 50      | 0         | Back          | 10mm     | Battery 1 | 23095 | 707.5       | 22.93               | 23.00               | 1.016                  | -0.08            | 0.653                  | 0.664                  |
|          | LTE Band 12_Ant 0 | 10M      | QPSK       | 1       | 49        | Right Side    | 10mm     | Battery 1 | 23095 | 707.5       | 23.72               | 24.00               | 1.067                  | 0.19             | 0.121                  | 0.129                  |
|          | LTE Band 12_Ant 0 | 10M      | QPSK       | 25      | 25        | Right Side    | 10mm     | Battery 1 | 23095 | 707.5       | 22.92               | 23.00               | 1.019                  | 0.08             | 0.102                  | 0.104                  |
|          | LTE Band 12_Ant 0 | 10M      | QPSK       | 1       | 49        | Top Side      | 10mm     | Battery 1 | 23095 | 707.5       | 23.72               | 24.00               | 1.067                  | 0.12             | 0.318                  | 0.339                  |
|          | LTE Band 12_Ant 0 | 10M      | QPSK       | 25      | 25        | Top Side      | 10mm     | Battery 1 | 23095 | 707.5       | 22.92               | 23.00               | 1.019                  | -0.06            | 0.245                  | 0.250                  |
|          | LTE Band 12_Ant 0 | 10M      | QPSK       | 1       | 49        | Bottom Side   | 10mm     | Battery 1 | 23095 | 707.5       | 23.72               | 24.00               | 1.067                  | -0.01            | 0.412                  | 0.439                  |
|          | LTE Band 12_Ant 0 | 10M      | QPSK       | 25      | 25        | Bottom Side   | 10mm     | Battery 1 | 23095 | 707.5       | 22.92               | 23.00               | 1.019                  | 0                | 0.248                  | 0.253                  |
|          | LTE Band 12_Ant 0 | 10M      | QPSK       | 1       | 49        | Back          | 10mm     | Battery 2 | 23095 | 707.5       | 23.72               | 24.00               | 1.067                  | 0.18             | 0.765                  | 0.816                  |
|          | LTE Band 13_Ant 0 | 10M      | QPSK       | 1       | 49        | Front         | 10mm     | Battery 1 | 23230 | 782         | 23.65               | 24.00               | 1.084                  | 0.08             | 0.716                  | 0.776                  |
|          | LTE Band 13_Ant 0 | 10M      | QPSK       | 25      | 25        | Front         | 10mm     | Battery 1 | 23230 | 782         | 22.71               | 23.00               | 1.069                  | -0.06            | 0.587                  | 0.628                  |
| 07       | LTE Band 13_Ant 0 | 10M      | QPSK       | 1       | 49        | Back          | 10mm     | Battery 1 | 23230 | 782         | 23.65               | 24.00               | 1.084                  | -0.17            | 0.744                  | 0.806                  |
|          | LTE Band 13_Ant 0 | 10M      | QPSK       | 25      | 25        | Back          | 10mm     | Battery 1 | 23230 | 782         | 22.71               | 23.00               | 1.069                  | -0.08            | 0.607                  | 0.649                  |
|          | LTE Band 13_Ant 0 | 10M      | QPSK       | 50      | 0         | Back          | 10mm     | Battery 1 | 23230 | 782         | 22.75               | 23.00               | 1.059                  | 0.12             | 0.615                  | 0.651                  |
|          | LTE Band 13_Ant 0 | 10M      | QPSK       | 1       | 49        | Right Side    | 10mm     | Battery 1 | 23230 | 782         | 23.65               | 24.00               | 1.084                  | -0.12            | 0.113                  | 0.122                  |
|          | LTE Band 13_Ant 0 | 10M      | QPSK       | 25      | 25        | Right Side    | 10mm     | Battery 1 | 23230 | 782         | 22.71               | 23.00               | 1.069                  | -0.1             | 0.094                  | 0.100                  |
|          | LTE Band 13_Ant 0 | 10M      | QPSK       | 1       | 49        | Top Side      | 10mm     | Battery 1 | 23230 | 782         | 23.65               | 24.00               | 1.084                  | 0.15             | 0.445                  | 0.482                  |
|          | LTE Band 13_Ant 0 | 10M      | QPSK       | 25      | 25        | Top Side      | 10mm     | Battery 1 | 23230 | 782         | 22.71               | 23.00               | 1.069                  | 0.02             | 0.353                  | 0.377                  |
|          | LTE Band 13_Ant 0 | 10M      | QPSK       | 1       | 49        | Bottom Side   | 10mm     | Battery 1 | 23230 | 782         | 23.65               | 24.00               | 1.084                  | 0.03             | 0.427                  | 0.463                  |
|          | LTE Band 13_Ant 0 | 10M      | QPSK       | 25      | 25        | Bottom Side   | 10mm     | Battery 1 | 23230 | 782         | 22.71               | 23.00               | 1.069                  | 0.08             | 0.351                  | 0.375                  |
|          | LTE Band 13_Ant 0 | 10M      | QPSK       | 1       | 49        | Back          | 10mm     | Battery 2 | 23230 | 782         | 23.65               | 24.00               | 1.084                  | -0.07            | 0.718                  | 0.778                  |



# FCC SAR TEST REPORT

Report No. : FA041658-01A

| Plot No. | Band              | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Battery   | Ch.   | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-------------------|----------|------------|---------|-----------|---------------|----------|-----------|-------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 08       | LTE Band 14_Ant 0 | 10M      | QPSK       | 1       | 0         | Front         | 10mm     | Battery 1 | 23330 | 793         | 23.67               | 24.00               | 1.079                  | 0.15             | 0.733                  | 0.791                  |
|          | LTE Band 14_Ant 0 | 10M      | QPSK       | 25      | 25        | Front         | 10mm     | Battery 1 | 23330 | 793         | 22.71               | 23.00               | 1.069                  | 0.09             | 0.601                  | 0.643                  |
|          | LTE Band 14_Ant 0 | 10M      | QPSK       | 1       | 0         | Back          | 10mm     | Battery 1 | 23330 | 793         | 23.67               | 24.00               | 1.079                  | -0.04            | 0.760                  | 0.820                  |
|          | LTE Band 14_Ant 0 | 10M      | QPSK       | 25      | 25        | Back          | 10mm     | Battery 1 | 23330 | 793         | 22.71               | 23.00               | 1.069                  | -0.05            | 0.630                  | 0.674                  |
|          | LTE Band 14_Ant 0 | 10M      | QPSK       | 50      | 0         | Back          | 10mm     | Battery 1 | 23330 | 793         | 22.63               | 23.00               | 1.089                  | -0.02            | 0.622                  | 0.677                  |
|          | LTE Band 14_Ant 0 | 10M      | QPSK       | 1       | 0         | Right Side    | 10mm     | Battery 1 | 23330 | 793         | 23.67               | 24.00               | 1.079                  | 0.02             | 0.119                  | 0.128                  |
|          | LTE Band 14_Ant 0 | 10M      | QPSK       | 25      | 25        | Right Side    | 10mm     | Battery 1 | 23330 | 793         | 22.71               | 23.00               | 1.069                  | 0.1              | 0.096                  | 0.103                  |
|          | LTE Band 14_Ant 0 | 10M      | QPSK       | 1       | 0         | Top Side      | 10mm     | Battery 1 | 23330 | 793         | 23.67               | 24.00               | 1.079                  | 0.15             | 0.415                  | 0.448                  |
|          | LTE Band 14_Ant 0 | 10M      | QPSK       | 25      | 25        | Top Side      | 10mm     | Battery 1 | 23330 | 793         | 22.71               | 23.00               | 1.069                  | -0.16            | 0.365                  | 0.390                  |
|          | LTE Band 14_Ant 0 | 10M      | QPSK       | 1       | 0         | Bottom Side   | 10mm     | Battery 1 | 23330 | 793         | 23.67               | 24.00               | 1.079                  | 0.18             | 0.419                  | 0.452                  |
| 09       | LTE Band 14_Ant 0 | 10M      | QPSK       | 25      | 25        | Bottom Side   | 10mm     | Battery 1 | 23330 | 793         | 22.71               | 23.00               | 1.069                  | 0.05             | 0.358                  | 0.383                  |
|          | LTE Band 14_Ant 0 | 10M      | QPSK       | 1       | 0         | Back          | 10mm     | Battery 2 | 23330 | 793         | 23.67               | 24.00               | 1.079                  | 0.01             | 0.728                  | 0.785                  |
|          | LTE Band 25_Ant 0 | 20M      | QPSK       | 1       | 49        | Front         | 10mm     | Battery 1 | 26340 | 1880        | 22.13               | 22.80               | 1.167                  | -0.03            | 0.645                  | 0.753                  |
|          | LTE Band 25_Ant 0 | 20M      | QPSK       | 50      | 24        | Front         | 10mm     | Battery 1 | 26340 | 1880        | 22.32               | 22.80               | 1.117                  | 0.05             | 0.653                  | 0.729                  |
|          | LTE Band 25_Ant 0 | 20M      | QPSK       | 1       | 49        | Back          | 10mm     | Battery 1 | 26340 | 1880        | 22.13               | 22.80               | 1.167                  | 0.06             | 0.688                  | 0.803                  |
|          | LTE Band 25_Ant 0 | 20M      | QPSK       | 1       | 49        | Back          | 10mm     | Battery 1 | 26140 | 1860        | 22.08               | 22.80               | 1.180                  | -0.01            | 0.770                  | 0.909                  |
|          | LTE Band 25_Ant 0 | 20M      | QPSK       | 1       | 49        | Back          | 10mm     | Battery 1 | 26590 | 1905        | 22.09               | 22.80               | 1.178                  | 0.07             | 0.522                  | 0.615                  |
|          | LTE Band 25_Ant 0 | 20M      | QPSK       | 50      | 24        | Back          | 10mm     | Battery 1 | 26340 | 1880        | 22.32               | 22.80               | 1.117                  | -0.09            | 0.702                  | 0.784                  |
|          | LTE Band 25_Ant 0 | 20M      | QPSK       | 100     | 0         | Back          | 10mm     | Battery 1 | 26340 | 1880        | 22.21               | 22.80               | 1.146                  | 0.08             | 0.683                  | 0.782                  |
|          | LTE Band 25_Ant 0 | 20M      | QPSK       | 1       | 49        | Right Side    | 10mm     | Battery 1 | 26340 | 1880        | 22.13               | 22.80               | 1.167                  | -0.02            | 0.184                  | 0.215                  |
| 10       | LTE Band 25_Ant 0 | 20M      | QPSK       | 50      | 24        | Right Side    | 10mm     | Battery 1 | 26340 | 1880        | 22.32               | 22.80               | 1.117                  | 0.06             | 0.208                  | 0.232                  |
|          | LTE Band 25_Ant 0 | 20M      | QPSK       | 1       | 49        | Top Side      | 10mm     | Battery 1 | 26340 | 1880        | 22.13               | 22.80               | 1.167                  | 0.11             | 0.066                  | 0.077                  |
|          | LTE Band 25_Ant 0 | 20M      | QPSK       | 50      | 24        | Top Side      | 10mm     | Battery 1 | 26340 | 1880        | 22.32               | 22.80               | 1.117                  | 0.16             | 0.078                  | 0.087                  |
|          | LTE Band 25_Ant 0 | 20M      | QPSK       | 1       | 49        | Bottom Side   | 10mm     | Battery 1 | 26340 | 1880        | 22.13               | 22.80               | 1.167                  | 0.14             | 0.508                  | 0.593                  |
|          | LTE Band 25_Ant 0 | 20M      | QPSK       | 50      | 24        | Bottom Side   | 10mm     | Battery 1 | 26340 | 1880        | 22.32               | 22.80               | 1.117                  | 0.11             | 0.523                  | 0.584                  |
|          | LTE Band 25_Ant 0 | 20M      | QPSK       | 1       | 49        | Back          | 10mm     | Battery 2 | 26140 | 1860        | 22.08               | 22.80               | 1.180                  | 0.08             | 0.726                  | 0.857                  |
|          | LTE Band 26_Ant 0 | 15M      | QPSK       | 1       | 0         | Front         | 10mm     | Battery 1 | 26865 | 831.5       | 23.91               | 24.00               | 1.021                  | 0.15             | 0.825                  | 0.842                  |
|          | LTE Band 26_Ant 0 | 15M      | QPSK       | 36      | 0         | Front         | 10mm     | Battery 1 | 26865 | 831.5       | 22.76               | 23.00               | 1.057                  | -0.02            | 0.678                  | 0.717                  |
|          | LTE Band 26_Ant 0 | 15M      | QPSK       | 75      | 0         | Front         | 10mm     | Battery 1 | 26865 | 831.5       | 22.69               | 23.00               | 1.074                  | 0.06             | 0.672                  | 0.722                  |
|          | LTE Band 26_Ant 0 | 15M      | QPSK       | 1       | 0         | Back          | 10mm     | Battery 1 | 26865 | 831.5       | 23.91               | 24.00               | 1.021                  | -0.08            | 0.850                  | 0.868                  |
| 11       | LTE Band 26_Ant 0 | 15M      | QPSK       | 36      | 0         | Back          | 10mm     | Battery 1 | 26865 | 831.5       | 22.76               | 23.00               | 1.057                  | -0.01            | 0.715                  | 0.756                  |
|          | LTE Band 26_Ant 0 | 15M      | QPSK       | 75      | 0         | Back          | 10mm     | Battery 1 | 26865 | 831.5       | 22.69               | 23.00               | 1.074                  | -0.05            | 0.700                  | 0.752                  |
|          | LTE Band 26_Ant 0 | 15M      | QPSK       | 1       | 0         | Right Side    | 10mm     | Battery 1 | 26865 | 831.5       | 23.91               | 24.00               | 1.021                  | 0.08             | 0.137                  | 0.140                  |
|          | LTE Band 26_Ant 0 | 15M      | QPSK       | 36      | 0         | Right Side    | 10mm     | Battery 1 | 26865 | 831.5       | 22.76               | 23.00               | 1.057                  | 0.12             | 0.108                  | 0.114                  |
|          | LTE Band 26_Ant 0 | 15M      | QPSK       | 1       | 0         | Top Side      | 10mm     | Battery 1 | 26865 | 831.5       | 23.91               | 24.00               | 1.021                  | 0.19             | 0.533                  | 0.544                  |
|          | LTE Band 26_Ant 0 | 15M      | QPSK       | 36      | 0         | Top Side      | 10mm     | Battery 1 | 26865 | 831.5       | 22.76               | 23.00               | 1.057                  | -0.01            | 0.485                  | 0.513                  |
|          | LTE Band 26_Ant 0 | 15M      | QPSK       | 1       | 0         | Bottom Side   | 10mm     | Battery 1 | 26865 | 831.5       | 23.91               | 24.00               | 1.021                  | 0                | 0.535                  | 0.546                  |
|          | LTE Band 26_Ant 0 | 15M      | QPSK       | 36      | 0         | Bottom Side   | 10mm     | Battery 1 | 26865 | 831.5       | 22.76               | 23.00               | 1.057                  | 0.08             | 0.431                  | 0.455                  |
|          | LTE Band 26_Ant 0 | 15M      | QPSK       | 1       | 0         | Back          | 10mm     | Battery 2 | 26865 | 831.5       | 23.91               | 24.00               | 1.021                  | 0.19             | 0.834                  | 0.851                  |
|          | LTE Band 30_Ant 0 | 10M      | QPSK       | 1       | 25        | Front         | 10mm     | Battery 1 | 27710 | 2310        | 20.99               | 21.00               | 1.002                  | 0.16             | 0.474                  | 0.475                  |
| 11       | LTE Band 30_Ant 0 | 10M      | QPSK       | 25      | 25        | Front         | 10mm     | Battery 1 | 27710 | 2310        | 20.14               | 20.50               | 1.086                  | 0.07             | 0.393                  | 0.427                  |
|          | LTE Band 30_Ant 0 | 10M      | QPSK       | 1       | 25        | Back          | 10mm     | Battery 1 | 27710 | 2310        | 20.99               | 21.00               | 1.002                  | 0.11             | 0.641                  | 0.643                  |
|          | LTE Band 30_Ant 0 | 10M      | QPSK       | 25      | 25        | Back          | 10mm     | Battery 1 | 27710 | 2310        | 20.14               | 20.50               | 1.086                  | 0.16             | 0.523                  | 0.568                  |
|          | LTE Band 30_Ant 0 | 10M      | QPSK       | 1       | 25        | Right Side    | 10mm     | Battery 1 | 27710 | 2310        | 20.99               | 21.00               | 1.002                  | -0.13            | 0.874                  | 0.876                  |
|          | LTE Band 30_Ant 0 | 10M      | QPSK       | 25      | 25        | Right Side    | 10mm     | Battery 1 | 27710 | 2310        | 20.14               | 20.50               | 1.086                  | 0.17             | 0.797                  | 0.866                  |
|          | LTE Band 30_Ant 0 | 10M      | QPSK       | 50      | 0         | Right Side    | 10mm     | Battery 1 | 27710 | 2310        | 20.12               | 20.50               | 1.091                  | 0.15             | 0.798                  | 0.871                  |
|          | LTE Band 30_Ant 0 | 10M      | QPSK       | 1       | 25        | Top Side      | 10mm     | Battery 1 | 27710 | 2310        | 20.99               | 21.00               | 1.002                  | 0.08             | 0.066                  | 0.066                  |
|          | LTE Band 30_Ant 0 | 10M      | QPSK       | 25      | 25        | Top Side      | 10mm     | Battery 1 | 27710 | 2310        | 20.14               | 20.50               | 1.086                  | 0.16             | 0.053                  | 0.058                  |
|          | LTE Band 30_Ant 0 | 10M      | QPSK       | 1       | 25        | Bottom Side   | 10mm     | Battery 1 | 27710 | 2310        | 20.99               | 21.00               | 1.002                  | 0.15             | 0.211                  | 0.211                  |
|          | LTE Band 30_Ant 0 | 10M      | QPSK       | 25      | 25        | Bottom Side   | 10mm     | Battery 1 | 27710 | 2310        | 20.14               | 20.50               | 1.086                  | 0.18             | 0.172                  | 0.187                  |
|          | LTE Band 30_Ant 0 | 10M      | QPSK       | 1       | 25        | Right Side    | 10mm     | Battery 2 | 27710 | 2310        | 20.99               | 21.00               | 1.002                  | 0.05             | 0.771                  | 0.773                  |



# FCC SAR TEST REPORT

Report No. : FA041658-01A

| Plot No. | Band              | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Battery   | Ch.    | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-------------------|----------|------------|---------|-----------|---------------|----------|-----------|--------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
|          | LTE Band 66_Ant 0 | 20M      | QPSK       | 1       | 0         | Front         | 10mm     | Battery 1 | 132072 | 1720        | 16.78               | 17.70               | 1.236                  | 0.12             | 0.354                  | 0.438                  |
|          | LTE Band 66_Ant 0 | 20M      | QPSK       | 50      | 24        | Front         | 10mm     | Battery 1 | 132072 | 1720        | 16.83               | 17.70               | 1.222                  | 0.12             | 0.321                  | 0.392                  |
|          | LTE Band 66_Ant 0 | 20M      | QPSK       | 1       | 0         | Back          | 10mm     | Battery 1 | 132072 | 1720        | 16.78               | 17.70               | 1.236                  | 0.01             | 0.227                  | 0.281                  |
|          | LTE Band 66_Ant 0 | 20M      | QPSK       | 50      | 24        | Back          | 10mm     | Battery 1 | 132072 | 1720        | 16.83               | 17.70               | 1.222                  | 0.04             | 0.214                  | 0.261                  |
|          | LTE Band 66_Ant 0 | 20M      | QPSK       | 1       | 0         | Right Side    | 10mm     | Battery 1 | 132072 | 1720        | 16.78               | 17.70               | 1.236                  | 0.04             | 0.697                  | 0.861                  |
|          | LTE Band 66_Ant 0 | 20M      | QPSK       | 1       | 0         | Right Side    | 10mm     | Battery 1 | 132322 | 1745        | 16.69               | 17.70               | 1.262                  | 0.11             | 0.466                  | 0.588                  |
|          | LTE Band 66_Ant 0 | 20M      | QPSK       | 1       | 0         | Right Side    | 10mm     | Battery 1 | 132572 | 1770        | 16.60               | 17.70               | 1.288                  | 0.15             | 0.300                  | 0.386                  |
|          | LTE Band 66_Ant 0 | 20M      | QPSK       | 50      | 24        | Right Side    | 10mm     | Battery 1 | 132072 | 1720        | 16.83               | 17.70               | 1.222                  | 0.18             | 0.627                  | 0.766                  |
|          | LTE Band 66_Ant 0 | 20M      | QPSK       | 100     | 0         | Right Side    | 10mm     | Battery 1 | 132572 | 1770        | 16.72               | 17.70               | 1.253                  | 0                | 0.636                  | 0.797                  |
|          | LTE Band 66_Ant 0 | 20M      | QPSK       | 1       | 0         | Top Side      | 10mm     | Battery 1 | 132072 | 1720        | 16.78               | 17.70               | 1.236                  | 0.13             | 0.001                  | 0.001                  |
|          | LTE Band 66_Ant 0 | 20M      | QPSK       | 50      | 24        | Top Side      | 10mm     | Battery 1 | 132072 | 1720        | 16.83               | 17.70               | 1.222                  | 0.13             | 0.001                  | 0.001                  |
|          | LTE Band 66_Ant 0 | 20M      | QPSK       | 1       | 0         | Bottom Side   | 10mm     | Battery 1 | 132072 | 1720        | 16.78               | 17.70               | 1.236                  | 0.11             | 0.099                  | 0.122                  |
|          | LTE Band 66_Ant 0 | 20M      | QPSK       | 50      | 24        | Bottom Side   | 10mm     | Battery 1 | 132072 | 1720        | 16.83               | 17.70               | 1.222                  | 0.02             | 0.115                  | 0.141                  |
| 12       | LTE Band 66_Ant 0 | 20M      | QPSK       | 1       | 0         | Right Side    | 10mm     | Battery 2 | 132072 | 1720        | 16.78               | 17.70               | 1.236                  | 0.01             | 0.784                  | 0.969                  |
|          | LTE Band 66_Ant 8 | 20M      | QPSK       | 1       | 0         | Front         | 10mm     | Battery 1 | 132322 | 1745        | 22.57               | 23.80               | 1.327                  | 0.12             | 0.331                  | 0.439                  |
|          | LTE Band 66_Ant 8 | 20M      | QPSK       | 50      | 50        | Front         | 10mm     | Battery 1 | 132322 | 1745        | 22.53               | 23.80               | 1.340                  | 0.05             | 0.346                  | 0.464                  |
|          | LTE Band 66_Ant 8 | 20M      | QPSK       | 1       | 0         | Back          | 10mm     | Battery 1 | 132322 | 1745        | 22.57               | 23.80               | 1.327                  | 0.03             | 0.471                  | 0.625                  |
|          | LTE Band 66_Ant 8 | 20M      | QPSK       | 50      | 50        | Back          | 10mm     | Battery 1 | 132322 | 1745        | 22.53               | 23.80               | 1.340                  | 0.07             | 0.506                  | 0.678                  |
|          | LTE Band 66_Ant 8 | 20M      | QPSK       | 1       | 0         | Top Side      | 10mm     | Battery 1 | 132322 | 1745        | 22.57               | 23.80               | 1.327                  | 0.14             | 0.605                  | 0.803                  |
|          | LTE Band 66_Ant 8 | 20M      | QPSK       | 1       | 0         | Top Side      | 10mm     | Battery 1 | 132072 | 1720        | 22.40               | 23.80               | 1.380                  | 0.09             | 0.463                  | 0.639                  |
|          | LTE Band 66_Ant 8 | 20M      | QPSK       | 1       | 0         | Top Side      | 10mm     | Battery 1 | 132572 | 1770        | 22.45               | 23.80               | 1.365                  | -0.04            | 0.684                  | 0.933                  |
|          | LTE Band 66_Ant 8 | 20M      | QPSK       | 50      | 50        | Top Side      | 10mm     | Battery 1 | 132322 | 1745        | 22.53               | 23.80               | 1.340                  | 0.14             | 0.607                  | 0.813                  |
|          | LTE Band 66_Ant 8 | 20M      | QPSK       | 50      | 50        | Top Side      | 10mm     | Battery 1 | 132072 | 1720        | 22.38               | 23.80               | 1.387                  | 0.03             | 0.475                  | 0.659                  |
|          | LTE Band 66_Ant 8 | 20M      | QPSK       | 50      | 50        | Top Side      | 10mm     | Battery 1 | 132572 | 1770        | 22.38               | 23.80               | 1.387                  | 0.04             | 0.695                  | 0.964                  |
|          | LTE Band 66_Ant 8 | 20M      | QPSK       | 100     | 0         | Top Side      | 10mm     | Battery 1 | 132572 | 1770        | 22.54               | 23.80               | 1.337                  | 0.13             | 0.712                  | 0.952                  |
|          | LTE Band 66_Ant 8 | 20M      | QPSK       | 50      | 50        | Top Side      | 10mm     | Battery 2 | 132572 | 1770        | 22.38               | 23.80               | 1.387                  | 0.01             | 0.691                  | 0.958                  |
|          | LTE Band 71_Ant 0 | 20M      | QPSK       | 1       | 0         | Front         | 10mm     | Battery 1 | 133322 | 683         | 23.77               | 24.00               | 1.054                  | 0.01             | 0.723                  | 0.762                  |
|          | LTE Band 71_Ant 0 | 20M      | QPSK       | 50      | 24        | Front         | 10mm     | Battery 1 | 133322 | 683         | 22.90               | 23.00               | 1.023                  | -0.1             | 0.530                  | 0.542                  |
|          | LTE Band 71_Ant 0 | 20M      | QPSK       | 1       | 0         | Back          | 10mm     | Battery 1 | 133322 | 683         | 23.77               | 24.00               | 1.054                  | 0                | 0.691                  | 0.729                  |
|          | LTE Band 71_Ant 0 | 20M      | QPSK       | 50      | 24        | Back          | 10mm     | Battery 1 | 133322 | 683         | 22.90               | 23.00               | 1.023                  | 0.09             | 0.519                  | 0.531                  |
|          | LTE Band 71_Ant 0 | 20M      | QPSK       | 1       | 0         | Right Side    | 10mm     | Battery 1 | 133322 | 683         | 23.77               | 24.00               | 1.054                  | 0.04             | 0.108                  | 0.114                  |
|          | LTE Band 71_Ant 0 | 20M      | QPSK       | 50      | 24        | Right Side    | 10mm     | Battery 1 | 133322 | 683         | 22.90               | 23.00               | 1.023                  | 0.06             | 0.096                  | 0.098                  |
|          | LTE Band 71_Ant 0 | 20M      | QPSK       | 1       | 0         | Top Side      | 10mm     | Battery 1 | 133322 | 683         | 23.77               | 24.00               | 1.054                  | -0.09            | 0.447                  | 0.471                  |
|          | LTE Band 71_Ant 0 | 20M      | QPSK       | 50      | 24        | Top Side      | 10mm     | Battery 1 | 133322 | 683         | 22.90               | 23.00               | 1.023                  | 0.17             | 0.308                  | 0.315                  |
|          | LTE Band 71_Ant 0 | 20M      | QPSK       | 1       | 0         | Bottom Side   | 10mm     | Battery 1 | 133322 | 683         | 23.77               | 24.00               | 1.054                  | -0.03            | 0.525                  | 0.554                  |
|          | LTE Band 71_Ant 0 | 20M      | QPSK       | 50      | 24        | Bottom Side   | 10mm     | Battery 1 | 133322 | 683         | 22.90               | 23.00               | 1.023                  | 0.18             | 0.364                  | 0.372                  |
| 13       | LTE Band 71_Ant 0 | 20M      | QPSK       | 1       | 0         | Front         | 10mm     | Battery 2 | 133322 | 683         | 23.77               | 24.00               | 1.054                  | -0.12            | 0.729                  | 0.769                  |



**<TDD LTE SAR>**

| Plot No. | Band                   | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Battery   | Ch.         | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|------------------------|----------|------------|---------|-----------|---------------|----------|-----------|-------------|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 1       | 99        | Front         | 10mm     | Battery 1 | 40185       | 2549.5      | 20.15               | 21.10               | 1.245                  | 62.9         | 1.006                     | 0.02             | 0.246                  | 0.308                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 50      | 24        | Front         | 10mm     | Battery 1 | 40185       | 2549.5      | 20.29               | 21.10               | 1.205                  | 62.9         | 1.006                     | 0.13             | 0.271                  | 0.328                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 1       | 99        | Back          | 10mm     | Battery 1 | 40185       | 2549.5      | 20.15               | 21.10               | 1.245                  | 62.9         | 1.006                     | 0.01             | 0.231                  | 0.289                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 50      | 24        | Back          | 10mm     | Battery 1 | 40185       | 2549.5      | 20.29               | 21.10               | 1.205                  | 62.9         | 1.006                     | 0.04             | 0.234                  | 0.283                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 1       | 99        | Right Side    | 10mm     | Battery 1 | 40185       | 2549.5      | 20.15               | 21.10               | 1.245                  | 62.9         | 1.006                     | 0.15             | 0.494                  | 0.618                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 1       | 99        | Right Side    | 10mm     | Battery 1 | 39750       | 2506        | 20.01               | 21.10               | 1.285                  | 62.9         | 1.006                     | 0.13             | 0.688                  | 0.889                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 1       | 99        | Right Side    | 10mm     | Battery 1 | 40620       | 2593        | 20.06               | 21.10               | 1.271                  | 62.9         | 1.006                     | 0.03             | 0.121                  | 0.155                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 1       | 99        | Right Side    | 10mm     | Battery 1 | 41055       | 2636.5      | 19.93               | 21.10               | 1.309                  | 62.9         | 1.006                     | 0.11             | 0.106                  | 0.140                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 1       | 99        | Right Side    | 10mm     | Battery 1 | 41490       | 2680        | 20.09               | 21.10               | 1.262                  | 62.9         | 1.006                     | 0.12             | 0.158                  | 0.201                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 50      | 24        | Right Side    | 10mm     | Battery 1 | 40185       | 2549.5      | 20.29               | 21.10               | 1.205                  | 62.9         | 1.006                     | 0.03             | 0.520                  | 0.631                  |
| 14       | LTE Band 41_Ant 0      | 20M      | QPSK       | 50      | 24        | Right Side    | 10mm     | Battery 1 | 39750       | 2506        | 20.27               | 21.10               | 1.211                  | 62.9         | 1.006                     | -0.06            | 0.815                  | 0.993                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 50      | 24        | Right Side    | 10mm     | Battery 1 | 40620       | 2593        | 20.19               | 21.10               | 1.233                  | 62.9         | 1.006                     | 0.04             | 0.146                  | 0.181                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 50      | 24        | Right Side    | 10mm     | Battery 1 | 41055       | 2636.5      | 19.96               | 21.10               | 1.300                  | 62.9         | 1.006                     | 0                | 0.105                  | 0.138                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 50      | 24        | Right Side    | 10mm     | Battery 1 | 41490       | 2680        | 20.18               | 21.10               | 1.236                  | 62.9         | 1.006                     | 0.04             | 0.138                  | 0.171                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 100     | 0         | Right Side    | 10mm     | Battery 1 | 40185       | 2549.5      | 20.28               | 21.10               | 1.208                  | 62.9         | 1.006                     | 0.18             | 0.517                  | 0.628                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 1       | 99        | Top Side      | 10mm     | Battery 1 | 40185       | 2549.5      | 20.15               | 21.10               | 1.245                  | 62.9         | 1.006                     | 0.08             | 0.076                  | 0.096                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 50      | 24        | Top Side      | 10mm     | Battery 1 | 40185       | 2549.5      | 20.29               | 21.10               | 1.205                  | 62.9         | 1.006                     | 0.18             | 0.057                  | 0.069                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 1       | 99        | Bottom Side   | 10mm     | Battery 1 | 40185       | 2549.5      | 20.15               | 21.10               | 1.245                  | 62.9         | 1.006                     | 0.12             | 0.214                  | 0.268                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 50      | 24        | Bottom Side   | 10mm     | Battery 1 | 40185       | 2549.5      | 20.29               | 21.10               | 1.205                  | 62.9         | 1.006                     | 0.11             | 0.228                  | 0.276                  |
|          | LTE Band 41_Ant 0      | 20M      | QPSK       | 50      | 24        | Right Side    | 10mm     | Battery 2 | 39750       | 2506        | 20.27               | 21.10               | 1.211                  | 62.9         | 1.006                     | 0.06             | 0.809                  | 0.986                  |
|          | LTE Band 41_HPUE_Ant 0 | 20M      | QPSK       | 1       | 0         | Right Side    | 10mm     | Battery 1 | 39750       | 2506        | 22.17               | 22.70               | 1.130                  | 42.9         | 1.009                     | -0.08            | 0.819                  | 0.934                  |
|          | LTE Band 41C_Ant 0     | 20M      | QPSK       | 1       | 0         | Right Side    | 10mm     | Battery 1 | 39750+39948 | 2506        | 19.50               | 21.10               | 1.445                  | 62.9         | 1.006                     | 0.03             | 0.673                  | 0.979                  |
|          | LTE Band 48_Ant 4      | 20M      | QPSK       | 1       | 0         | Front         | 10mm     | Battery 1 | 56640       | 3690        | 19.50               | 19.50               | 1.000                  | 62.9         | 1.006                     | -0.08            | 0.460                  | 0.463                  |
|          | LTE Band 48_Ant 4      | 20M      | QPSK       | 50      | 0         | Front         | 10mm     | Battery 1 | 56640       | 3690        | 18.44               | 18.50               | 1.014                  | 62.9         | 1.006                     | 0.03             | 0.382                  | 0.390                  |
|          | LTE Band 48_Ant 4      | 20M      | QPSK       | 1       | 0         | Back          | 10mm     | Battery 1 | 56640       | 3690        | 19.50               | 19.50               | 1.000                  | 62.9         | 1.006                     | 0.06             | 0.215                  | 0.216                  |
|          | LTE Band 48_Ant 4      | 20M      | QPSK       | 50      | 0         | Back          | 10mm     | Battery 1 | 56640       | 3690        | 18.44               | 18.50               | 1.014                  | 62.9         | 1.006                     | -0.12            | 0.179                  | 0.183                  |
|          | LTE Band 48_Ant 4      | 20M      | QPSK       | 1       | 0         | Right Side    | 10mm     | Battery 1 | 56640       | 3690        | 19.50               | 19.50               | 1.000                  | 62.9         | 1.006                     | -0.09            | 0.232                  | 0.233                  |
|          | LTE Band 48_Ant 4      | 20M      | QPSK       | 50      | 0         | Right Side    | 10mm     | Battery 1 | 56640       | 3690        | 18.44               | 18.50               | 1.014                  | 62.9         | 1.006                     | -0.03            | 0.190                  | 0.194                  |
|          | LTE Band 48_Ant 4      | 20M      | QPSK       | 1       | 0         | Top Side      | 10mm     | Battery 1 | 56640       | 3690        | 19.50               | 19.50               | 1.000                  | 62.9         | 1.006                     | 0.01             | 0.100                  | 0.101                  |
|          | LTE Band 48_Ant 4      | 20M      | QPSK       | 50      | 0         | Top Side      | 10mm     | Battery 1 | 56640       | 3690        | 18.44               | 18.50               | 1.014                  | 62.9         | 1.006                     | 0.05             | 0.084                  | 0.086                  |
|          | LTE Band 48_Ant 4      | 20M      | QPSK       | 1       | 0         | Bottom Side   | 10mm     | Battery 1 | 56640       | 3690        | 19.50               | 19.50               | 1.000                  | 62.9         | 1.006                     | 0.11             | 0.078                  | 0.078                  |
|          | LTE Band 48_Ant 4      | 20M      | QPSK       | 50      | 0         | Bottom Side   | 10mm     | Battery 1 | 56640       | 3690        | 18.44               | 18.50               | 1.014                  | 62.9         | 1.006                     | 0.13             | 0.065                  | 0.066                  |
| 15       | LTE Band 48_Ant 4      | 20M      | QPSK       | 1       | 0         | Front         | 10mm     | Battery 2 | 56640       | 3690        | 19.50               | 19.50               | 1.000                  | 62.9         | 1.006                     | -0.06            | 0.632                  | 0.636                  |
|          | LTE Band 48C_Ant 4     | 20M      | QPSK       | 1       | 0         | Front         | 10mm     | Battery 2 | 56640+56642 | 3690        | 17.97               | 19.50               | 1.422                  | 62.9         | 1.006                     | -0.02            | 0.436                  | 0.624                  |

**<5G NR SAR>**

| Plot No. | Band          | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Battery   | Ch.    | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|---------------|----------|------------|---------|-----------|---------------|----------|-----------|--------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
|          | FR1 n25_Ant 8 | 20M      | BPSK       | 1       | 53        | Front         | 10mm     | Battery 1 | 381000 | 1905        | 21.45               | 22.10               | 1.161                  | 0.01             | 0.206                  | 0.239                  |
|          | FR1 n25_Ant 8 | 20M      | BPSK       | 50      | 0         | Front         | 10mm     | Battery 1 | 381000 | 1905        | 21.39               | 22.10               | 1.178                  | 0.02             | 0.198                  | 0.233                  |
|          | FR1 n25_Ant 8 | 20M      | BPSK       | 1       | 53        | Back          | 10mm     | Battery 1 | 381000 | 1905        | 21.45               | 22.10               | 1.161                  | 0.08             | 0.372                  | 0.432                  |
|          | FR1 n25_Ant 8 | 20M      | BPSK       | 50      | 0         | Back          | 10mm     | Battery 1 | 381000 | 1905        | 21.39               | 22.10               | 1.178                  | 0.05             | 0.352                  | 0.415                  |
|          | FR1 n25_Ant 8 | 20M      | BPSK       | 1       | 53        | Top Side      | 10mm     | Battery 1 | 381000 | 1905        | 21.45               | 22.10               | 1.161                  | 0.06             | 0.645                  | 0.749                  |
| 16       | FR1 n25_Ant 8 | 20M      | BPSK       | 1       | 53        | Top Side      | 10mm     | Battery 1 | 372000 | 1860        | 21.42               | 22.10               | 1.169                  | 0.02             | 0.732                  | 0.856                  |
|          | FR1 n25_Ant 8 | 20M      | BPSK       | 1       | 53        | Top Side      | 10mm     | Battery 1 | 376000 | 1880        | 21.34               | 22.10               | 1.191                  | -0.03            | 0.641                  | 0.764                  |
|          | FR1 n25_Ant 8 | 20M      | BPSK       | 50      | 0         | Top Side      | 10mm     | Battery 1 | 381000 | 1905        | 21.39               | 22.10               | 1.178                  | 0.01             | 0.562                  | 0.662                  |
|          | FR1 n25_Ant 8 | 20M      | BPSK       | 100     | 0         | Top Side      | 10mm     | Battery 1 | 381000 | 1905        | 21.32               | 22.10               | 1.197                  | 0.05             | 0.553                  | 0.662                  |
|          | FR1 n25_Ant 8 | 20M      | BPSK       | 1       | 53        | Top Side      | 10mm     | Battery 2 | 372000 | 1860        | 21.42               | 22.10               | 1.169                  | 0.07             | 0.552                  | 0.646                  |
|          | FR1 n41_Ant 8 | 100M     | BPSK       | 1       | 137       | Front         | 10mm     | Battery 1 | 509202 | 2546.01     | 19.40               | 20.40               | 1.259                  | 0.1              | 0.207                  | 0.261                  |
|          | FR1 n41_Ant 8 | 100M     | BPSK       | 135     | 69        | Front         | 10mm     | Battery 1 | 509202 | 2546.01     | 19.46               | 20.40               | 1.242                  | 0.11             | 0.208                  | 0.258                  |
|          | FR1 n41_Ant 8 | 100M     | BPSK       | 1       | 137       | Back          | 10mm     | Battery 1 | 509202 | 2546.01     | 19.40               | 20.40               | 1.259                  | 0.05             | 0.253                  | 0.319                  |
|          | FR1 n41_Ant 8 | 100M     | BPSK       | 135     | 69        | Back          | 10mm     | Battery 1 | 509202 | 2546.01     | 19.46               | 20.40               | 1.242                  | 0                | 0.259                  | 0.322                  |
|          | FR1 n41_Ant 8 | 100M     | BPSK       | 1       | 137       | Top Side      | 10mm     | Battery 1 | 509202 | 2546.01     | 19.40               | 20.40               | 1.259                  | 0.14             | 0.676                  | 0.851                  |
| 17       | FR1 n41_Ant 8 | 100M     | BPSK       | 1       | 1         | Top Side      | 10mm     | Battery 1 | 518598 | 2592.99     | 19.27               | 20.40               | 1.297                  | -0.08            | 0.728                  | 0.944                  |
|          | FR1 n41_Ant 8 | 100M     | BPSK       | 1       | 1         | Top Side      | 10mm     | Battery 1 | 528000 | 2640        | 19.37               | 20.40               | 1.268                  | 0.13             | 0.613                  | 0.777                  |
|          | FR1 n41_Ant 8 | 100M     | BPSK       | 135     | 69        | Top Side      | 10mm     | Battery 1 | 509202 | 2546.01     | 19.46               | 20.40               | 1.242                  | 0.14             | 0.684                  | 0.849                  |
|          | FR1 n41_Ant 8 | 100M     | BPSK       | 135     | 0         | Top Side      | 10mm     | Battery 1 | 518598 | 2592.99     | 19.34               | 20.40               | 1.276                  | 0.07             | 0.630                  | 0.804                  |
|          | FR1 n41_Ant 8 | 100M     | BPSK       | 135     | 0         | Top Side      | 10mm     | Battery 1 | 528000 | 2640        | 19.09               | 20.40               | 1.352                  | 0.03             | 0.643                  | 0.869                  |
|          | FR1 n41_Ant 8 | 100M     | BPSK       | 270     | 0         | Top Side      | 10mm     | Battery 1 | 509202 | 2546.01     | 19.39               | 20.40               | 1.262                  | 0                | 0.677                  | 0.854                  |
|          | FR1 n41_Ant 8 | 100M     | BPSK       | 1       | 1         | Top Side      | 10mm     | Battery 2 | 518598 | 2592.99     | 19.27               | 20.40               | 1.297                  | 0.07             | 0.669                  | 0.868                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 1       | 53        | Front         | 10mm     | Battery 1 | 354000 | 1770        | 23.45               | 24.00               | 1.135                  | -0.08            | 0.690                  | 0.783                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 50      | 28        | Front         | 10mm     | Battery 1 | 354000 | 1770        | 23.57               | 24.00               | 1.104                  | -0.04            | 0.625                  | 0.690                  |
| 18       | FR1 n66_Ant 0 | 20M      | BPSK       | 1       | 53        | Back          | 10mm     | Battery 1 | 354000 | 1770        | 23.45               | 24.00               | 1.135                  | 0.01             | 0.828                  | 0.940                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 1       | 53        | Back          | 10mm     | Battery 1 | 344000 | 1720        | 23.38               | 24.00               | 1.153                  | -0.06            | 0.653                  | 0.753                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 1       | 53        | Back          | 10mm     | Battery 1 | 349000 | 1745        | 23.34               | 24.00               | 1.164                  | -0.08            | 0.738                  | 0.859                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 50      | 28        | Back          | 10mm     | Battery 1 | 354000 | 1770        | 23.57               | 24.00               | 1.104                  | -0.07            | 0.762                  | 0.841                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 50      | 28        | Back          | 10mm     | Battery 1 | 344000 | 1720        | 23.16               | 24.00               | 1.213                  | -0.09            | 0.593                  | 0.720                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 50      | 28        | Back          | 10mm     | Battery 1 | 349000 | 1745        | 23.18               | 24.00               | 1.208                  | -0.12            | 0.697                  | 0.842                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 100     | 0         | Back          | 10mm     | Battery 1 | 349000 | 1745        | 23.16               | 23.50               | 1.081                  | -0.1             | 0.682                  | 0.738                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 1       | 53        | Right Side    | 10mm     | Battery 1 | 354000 | 1770        | 23.45               | 24.00               | 1.135                  | -0.11            | 0.790                  | 0.897                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 1       | 53        | Right Side    | 10mm     | Battery 1 | 344000 | 1720        | 23.38               | 24.00               | 1.153                  | -0.05            | 0.632                  | 0.729                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 1       | 53        | Right Side    | 10mm     | Battery 1 | 349000 | 1745        | 23.34               | 24.00               | 1.164                  | -0.03            | 0.751                  | 0.874                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 50      | 28        | Right Side    | 10mm     | Battery 1 | 354000 | 1770        | 23.57               | 24.00               | 1.104                  | -0.02            | 0.735                  | 0.811                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 50      | 28        | Right Side    | 10mm     | Battery 1 | 344000 | 1720        | 23.16               | 24.00               | 1.213                  | -0.04            | 0.585                  | 0.710                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 50      | 28        | Right Side    | 10mm     | Battery 1 | 349000 | 1745        | 23.18               | 24.00               | 1.208                  | -0.08            | 0.774                  | 0.935                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 100     | 0         | Right Side    | 10mm     | Battery 1 | 349000 | 1745        | 23.16               | 23.50               | 1.081                  | -0.07            | 0.764                  | 0.826                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 1       | 53        | Top Side      | 10mm     | Battery 1 | 354000 | 1770        | 23.45               | 24.00               | 1.135                  | -0.02            | 0.003                  | 0.003                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 50      | 28        | Top Side      | 10mm     | Battery 1 | 354000 | 1770        | 23.57               | 24.00               | 1.104                  | -0.01            | 0.003                  | 0.003                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 1       | 53        | Bottom Side   | 10mm     | Battery 1 | 354000 | 1770        | 23.45               | 24.00               | 1.135                  | -0.02            | 0.495                  | 0.562                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 50      | 28        | Bottom Side   | 10mm     | Battery 1 | 354000 | 1770        | 23.57               | 24.00               | 1.104                  | -0.06            | 0.457                  | 0.505                  |
|          | FR1 n66_Ant 0 | 20M      | BPSK       | 1       | 53        | Back          | 10mm     | Battery 2 | 354000 | 1770        | 23.45               | 24.00               | 1.135                  | -0.09            | 0.763                  | 0.866                  |
|          | FR1 n66_Ant 8 | 20M      | BPSK       | 1       | 1         | Front         | 10mm     | Battery 1 | 354000 | 1770        | 22.76               | 23.40               | 1.159                  | 0.06             | 0.394                  | 0.457                  |
|          | FR1 n66_Ant 8 | 20M      | BPSK       | 50      | 0         | Front         | 10mm     | Battery 1 | 354000 | 1770        | 22.75               | 23.40               | 1.161                  | 0.09             | 0.400                  | 0.465                  |
|          | FR1 n66_Ant 8 | 20M      | BPSK       | 1       | 1         | Back          | 10mm     | Battery 1 | 354000 | 1770        | 22.76               | 23.40               | 1.159                  | 0.11             | 0.582                  | 0.674                  |
|          | FR1 n66_Ant 8 | 20M      | BPSK       | 50      | 0         | Back          | 10mm     | Battery 1 | 354000 | 1770        | 22.75               | 23.40               | 1.161                  | 0.01             | 0.579                  | 0.672                  |
|          | FR1 n66_Ant 8 | 20M      | BPSK       | 1       | 1         | Top Side      | 10mm     | Battery 1 | 354000 | 1770        | 22.76               | 23.40               | 1.159                  | -0.06            | 0.666                  | 0.772                  |
|          | FR1 n66_Ant 8 | 20M      | BPSK       | 50      | 0         | Top Side      | 10mm     | Battery 1 | 354000 | 1770        | 22.75               | 23.40               | 1.161                  | 0.06             | 0.737                  | 0.856                  |
|          | FR1 n66_Ant 8 | 20M      | BPSK       | 50      | 0         | Top Side      | 10mm     | Battery 1 | 344000 | 1720        | 22.20               | 23.40               | 1.318                  | 0.01             | 0.447                  | 0.589                  |
|          | FR1 n66_Ant 8 | 20M      | BPSK       | 50      | 0         | Top Side      | 10mm     | Battery 1 | 349000 | 1745        | 22.53               | 23.40               | 1.222                  | -0.09            | 0.569                  | 0.695                  |
|          | FR1 n66_Ant 8 | 20M      | BPSK       | 100     | 0         | Top Side      | 10mm     | Battery 1 | 354000 | 1770        | 22.73               | 23.40               | 1.167                  | -0.05            | 0.711                  | 0.830                  |
|          | FR1 n66_Ant 8 | 20M      | BPSK       | 50      | 0         | Top Side      | 10mm     | Battery 2 | 354000 | 1770        | 22.75               | 23.40               | 1.161                  | 0.05             | 0.712                  | 0.827                  |



| Plot No. | Band          | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Battery   | Ch.    | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|---------------|----------|------------|---------|-----------|---------------|----------|-----------|--------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 19       | FR1 n71_Ant 0 | 20M      | BPSK       | 1       | 1         | Front         | 10mm     | Battery 1 | 136100 | 680.5       | 23.17               | 24.00               | 1.211                  | -0.12            | 0.722                  | 0.874                  |
|          | FR1 n71_Ant 0 | 20M      | BPSK       | 50      | 28        | Front         | 10mm     | Battery 1 | 136100 | 680.5       | 23.09               | 24.00               | 1.233                  | 0.02             | 0.622                  | 0.767                  |
|          | FR1 n71_Ant 0 | 20M      | BPSK       | 100     | 0         | Front         | 10mm     | Battery 1 | 136100 | 680.5       | 21.50               | 23.50               | 1.585                  | -0.02            | 0.468                  | 0.742                  |
|          | FR1 n71_Ant 0 | 20M      | BPSK       | 1       | 1         | Back          | 10mm     | Battery 1 | 136100 | 680.5       | 23.17               | 24.00               | 1.211                  | 0.11             | 0.693                  | 0.839                  |
|          | FR1 n71_Ant 0 | 20M      | BPSK       | 50      | 28        | Back          | 10mm     | Battery 1 | 136100 | 680.5       | 23.09               | 24.00               | 1.233                  | 0.15             | 0.600                  | 0.740                  |
|          | FR1 n71_Ant 0 | 20M      | BPSK       | 100     | 0         | Back          | 10mm     | Battery 1 | 136100 | 680.5       | 21.50               | 23.50               | 1.585                  | 0.06             | 0.451                  | 0.715                  |
|          | FR1 n71_Ant 0 | 20M      | BPSK       | 1       | 1         | Right Side    | 10mm     | Battery 1 | 136100 | 680.5       | 23.17               | 24.00               | 1.211                  | 0.18             | 0.073                  | 0.088                  |
|          | FR1 n71_Ant 0 | 20M      | BPSK       | 50      | 28        | Right Side    | 10mm     | Battery 1 | 136100 | 680.5       | 23.09               | 24.00               | 1.233                  | -0.07            | 0.070                  | 0.086                  |
|          | FR1 n71_Ant 0 | 20M      | BPSK       | 1       | 1         | Top Side      | 10mm     | Battery 1 | 136100 | 680.5       | 23.17               | 24.00               | 1.211                  | 0.14             | 0.443                  | 0.536                  |
|          | FR1 n71_Ant 0 | 20M      | BPSK       | 50      | 28        | Top Side      | 10mm     | Battery 1 | 136100 | 680.5       | 23.09               | 24.00               | 1.233                  | 0.15             | 0.369                  | 0.455                  |
|          | FR1 n71_Ant 0 | 20M      | BPSK       | 1       | 1         | Bottom Side   | 10mm     | Battery 1 | 136100 | 680.5       | 23.17               | 24.00               | 1.211                  | 0                | 0.534                  | 0.646                  |
|          | FR1 n71_Ant 0 | 20M      | BPSK       | 50      | 28        | Bottom Side   | 10mm     | Battery 1 | 136100 | 680.5       | 23.09               | 24.00               | 1.233                  | -0.02            | 0.433                  | 0.534                  |
|          | FR1 n71_Ant 0 | 20M      | BPSK       | 1       | 1         | Front         | 10mm     | Battery 2 | 136100 | 680.5       | 23.17               | 24.00               | 1.211                  | 0.05             | 0.720                  | 0.872                  |

## 14.2 Repeated SAR Measurement

| No. | Band              | Mode           | Test Position | Gap (mm) | Battery   | Ch.   | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Ratio | Reported 1g SAR (W/kg) |
|-----|-------------------|----------------|---------------|----------|-----------|-------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|-------|------------------------|
| 1st | WCDMA IV_Ant 0    | RMC 12.2Kbps   | Right Side    | 10mm     | Battery 2 | 1312  | 1712.4      | 18.05               | 18.60               | 1.135                  | -0.07            | 0.873                  | -     | 0.991                  |
| 2nd | WCDMA IV_Ant 0    | RMC 12.2Kbps   | Right Side    | 10mm     | Battery 2 | 1312  | 1712.4      | 18.05               | 18.60               | 1.135                  | 0.04             | 0.844                  | 1.03  | 0.958                  |
| 1st | WCDMA V_Ant 0     | RMC 12.2Kbps   | Back          | 10mm     | Battery 1 | 4132  | 826.4       | 23.77               | 24.00               | 1.054                  | -0.13            | 0.864                  | -     | 0.911                  |
| 2nd | WCDMA V_Ant 0     | RMC 12.2Kbps   | Back          | 10mm     | Battery 1 | 4132  | 826.4       | 23.77               | 24.00               | 1.054                  | 0.06             | 0.841                  | 1.03  | 0.887                  |
| 1st | LTE Band 7_Ant 0  | 20M_QPSK_50_50 | Right Side    | 10mm     | Battery 1 | 20850 | 2510        | 18.43               | 18.90               | 1.114                  | -0.05            | 0.893                  | -     | 0.995                  |
| 2nd | LTE Band 7_Ant 0  | 20M_QPSK_50_50 | Right Side    | 10mm     | Battery 1 | 20850 | 2510        | 18.43               | 18.90               | 1.114                  | 0.09             | 0.866                  | 1.03  | 0.965                  |
| 1st | LTE Band 30_Ant 0 | 10M_QPSK_1_25  | Right Side    | 10mm     | Battery 1 | 27710 | 2310        | 20.99               | 21.00               | 1.002                  | -0.13            | 0.874                  | -     | 0.876                  |
| 2nd | LTE Band 30_Ant 0 | 10M_QPSK_1_25  | Right Side    | 10mm     | Battery 1 | 27710 | 2310        | 20.99               | 21.00               | 1.002                  | 0.03             | 0.855                  | 1.02  | 0.857                  |

### General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is  $\geq 0.8$ W/kg.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is  $\leq 1.2$  and the measured SAR  $< 1.45$ W/kg, only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated *measured SAR*.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

## 14.3 LTE Band 41 Power Class 2 and Power Class 3 Linearity

This device support Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operation is 43.3% using UL-DL configuration 1. Per FCC Guidance based on the device behavior, all SAR tests were performed using Power Class 3. Power Class 2 is tested using the highest SAR test configuration in Power Class 3 for each LTE configuration and exposure condition combination, according to the highest time averaged power for all applicable uplink-downlink configurations in Power Class 2. When the reported SAR vs. output power is linearly scaled with  $< 10\%$  discrepancy between power classes and all reported SAR are  $< 1.4$  W/kg, Separate SAR testing for Power Class 2 is not required

|                                     | LTE Band 41<br>(Power Class 3) | LTE Band 41<br>(Power Class 2) |
|-------------------------------------|--------------------------------|--------------------------------|
| Maximum Tune up Power (dBm)         | 21.1                           | 22.7                           |
| Reported 1g SAR (W/kg)              | 0.993                          | 0.934                          |
| Duty Cycle                          | 63.30%                         | 43.30%                         |
| Frame Averaged (mW)                 | 81.55                          | 80.63                          |
| Linearity SAR(W/kg)                 | 0.98                           |                                |
| % deviation from expected linearity |                                | -4.87%                         |

## **15. Simultaneous Transmission Analysis**

### **15.1 5G NR + LTE + WLAN + BT Sim-Tx analysis**

In 5G NR + LTE + WLAN + BT simultaneous transmission, 5G NR and LTE transmission are managed and controlled by Qualcomm® Smart Transmit, while the RF exposure from WLAN and BT radios is managed using legacy approach, i.e., through a fixed power back-off if needed.

Since WLAN and BT do not employ time-averaging, 1gSAR and 10gSAR measurement for WLAN and BT need to be conducted at their corresponding rated power following current FCC test procedures to determine reported SAR values. Smart Transmit current implementation assumes hotspots from 5G NR and LTE are collocated. Therefore, for a total of 100% exposure margin, if LTE uses x%, then the exposure margin left for 5G NR is capped to (100-x)%. Thus, the compliance equation for LTE + 5G NR is

$$x\% * A + (100-x)\% * B \leq 1.0,$$

Where, A is normalized reported time-averaged SAR exposure ratio from LTE, and  $A \leq 1.0$ ; B is normalized reported time-averaged exposure ratio from 5G NR (i.e., PD exposure for 5G FR2 or SAR exposure for 5G FR1), and  $B \leq 1.0$ .

Let C = normalized reported SAR exposure ratio from WLAN+BT, then for compliance,

$$x\% * A + (100-x)\% * B + C \leq 1.0 \quad (1)$$

$$x\% * A + (100-x)\% * B \leq x\% * \max(A, B) + (100-x)\% * \max(A, B) \leq \max(A, B)$$

$$x\% * A + (100-x)\% * B + C \leq \max(A, B) + C \leq 1.0 \quad (2)$$

if  $A + C \leq 1.0$  and  $B + C \leq 1.0$  can be proven, then " $x\% * A + (100-x)\% * B + C \leq 1.0$ ". Therefore simultaneous transmission analysis for 5G NR + LTE + WLAN + BT can be performed in two steps

Step 1: Prove total exposure ratio (TER) of LTE + WLAN + BT < 1

Step 2: Prove total exposure ratio (TER) of 5G NR + WLAN + BT < 1

### **15.2 Sim-Tx configuration**

| NO. | Simultaneous Transmission Configurations     | Exposure Positions |
|-----|----------------------------------------------|--------------------|
|     |                                              | Body               |
| 1.  | UMTS + 2.4GHz WiFi 0 + 2.4GHz WiFi 1         | Yes                |
| 2.  | UMTS + 5GHz WiFi 0 + 5GHz WiFi 1             | Yes                |
| 3.  | LTE+ 2.4GHz WiFi 0 + 2.4GHz WiFi 1           | Yes                |
| 4.  | LTE + 5GHz WiFi 0 + 5GHz WiFi 1              | Yes                |
| 5.  | LTE + 5G FR1 + 2.4GHz WiFi 0 + 2.4GHz WiFi 1 | Yes                |
| 6.  | LTE + 5G FR1 + 5GHz WiFi 0 + 5GHz WiFi 1     | Yes                |

#### **General Note:**

- The worst case WLAN reported SAR for each configuration was used for SAR summation, regardless of whether the WLAN channel has Hotspot capability. Therefore, the following summations represent the absolute worst cases for simultaneous transmission with WLAN.
- The Scaled SAR summation is calculated based on the same configuration and test position.
- Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
  - Scalar SAR summation < 1.6W/kg.
  - $SPLSR = (SAR1 + SAR2)^{1.5} / (\min. \text{ separation distance, mm})$ , and the peak separation distance is determined from the square root of  $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$ , where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
  - If  $SPLSR \leq 0.04$  for 1g SAR, simultaneously transmission SAR measurement is not necessary.
  - Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
- The WLAN SAR results according to RF exposure lab SAR evaluation report, report no.: SAR.20200804, are use performed Sim-Tx analysis, and the Sim-Tx analysis is following step:
  - For WLAN RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode
  - If WLAN RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode is > 1.6W/kg, the MIMO SAR result is used.

### 15.3 Body Exposure Conditions

| WWAN Band         | Exposure Position | 1                        | 2                                     | 3                                     | 4                                   | 5                                   | 1+2+3 Summed<br>1g SAR (W/kg) | 1+4+5 Summed<br>1g SAR (W/kg) |
|-------------------|-------------------|--------------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|-------------------------------|-------------------------------|
|                   |                   | WWAN<br>1g SAR<br>(W/kg) | 2.4GHz<br>Wi-Fi 0<br>1g SAR<br>(W/kg) | 2.4GHz<br>Wi-Fi 1<br>1g SAR<br>(W/kg) | 5GHz<br>Wi-Fi 0<br>1g SAR<br>(W/kg) | 5GHz<br>Wi-Fi 1<br>1g SAR<br>(W/kg) |                               |                               |
| WCDMA II_Ant 0    | Front             | 0.640                    | 0.110                                 | 0.070                                 | 0.200                               | 0.150                               | 0.820                         | 0.990                         |
|                   | Back              | 0.795                    | 0.310                                 | 0.080                                 | 0.440                               | 0.140                               | 1.185                         | 1.375                         |
|                   | Left side         |                          | 0.090                                 | 0.020                                 | 0.100                               | 0.060                               | 0.110                         | 0.160                         |
|                   | Right side        | 0.288                    |                                       |                                       |                                     |                                     | 0.288                         | 0.288                         |
|                   | Top side          | 0.085                    |                                       | 0.180                                 |                                     | 0.270                               | 0.265                         | 0.355                         |
|                   | Bottom side       | 0.590                    | 0.460                                 |                                       | 0.570                               |                                     | 1.050                         | 1.160                         |
| WCDMA IV_Ant 0    | Front             | 0.518                    | 0.110                                 | 0.070                                 | 0.200                               | 0.150                               | 0.698                         | 0.868                         |
|                   | Back              | 0.314                    | 0.310                                 | 0.080                                 | 0.440                               | 0.140                               | 0.704                         | 0.894                         |
|                   | Left side         |                          | 0.090                                 | 0.020                                 | 0.100                               | 0.060                               | 0.110                         | 0.160                         |
|                   | Right side        | 0.991                    |                                       |                                       |                                     |                                     | 0.991                         | 0.991                         |
|                   | Top side          | 0.001                    |                                       | 0.180                                 |                                     | 0.270                               | 0.181                         | 0.271                         |
|                   | Bottom side       | 0.145                    | 0.460                                 |                                       | 0.570                               |                                     | 0.605                         | 0.715                         |
| WCDMA V_Ant 0     | Front             | 0.838                    | 0.110                                 | 0.070                                 | 0.200                               | 0.150                               | 1.018                         | 1.188                         |
|                   | Back              | 0.911                    | 0.310                                 | 0.080                                 | 0.440                               | 0.140                               | 1.301                         | 1.491                         |
|                   | Left side         |                          | 0.090                                 | 0.020                                 | 0.100                               | 0.060                               | 0.110                         | 0.160                         |
|                   | Right side        | 0.133                    |                                       |                                       |                                     |                                     | 0.133                         | 0.133                         |
|                   | Top side          | 0.580                    |                                       | 0.180                                 |                                     | 0.270                               | 0.760                         | 0.850                         |
|                   | Bottom side       | 0.504                    | 0.460                                 |                                       | 0.570                               |                                     | 0.964                         | 1.074                         |
| LTE Band 2_Ant 8  | Front             | 0.309                    | 0.110                                 | 0.070                                 | 0.200                               | 0.150                               | 0.489                         | 0.659                         |
|                   | Back              | 0.532                    | 0.310                                 | 0.080                                 | 0.440                               | 0.140                               | 0.922                         | 1.112                         |
|                   | Left side         |                          | 0.090                                 | 0.020                                 | 0.100                               | 0.060                               | 0.110                         | 0.160                         |
|                   | Right side        |                          |                                       |                                       |                                     |                                     | 0.000                         | 0.000                         |
|                   | Top side          | 0.914                    |                                       | 0.180                                 |                                     | 0.270                               | 1.094                         | 1.184                         |
|                   | Bottom side       |                          | 0.460                                 |                                       | 0.570                               |                                     | 0.460                         | 0.570                         |
| LTE Band 7_Ant 0  | Front             | 0.297                    | 0.110                                 | 0.070                                 | 0.200                               | 0.150                               | 0.477                         | 0.647                         |
|                   | Back              | 0.334                    | 0.310                                 | 0.080                                 | 0.440                               | 0.140                               | 0.724                         | 0.914                         |
|                   | Left side         |                          | 0.090                                 | 0.020                                 | 0.100                               | 0.060                               | 0.110                         | 0.160                         |
|                   | Right side        | 0.995                    |                                       |                                       |                                     |                                     | 0.995                         | 0.995                         |
|                   | Top side          | 0.086                    |                                       | 0.180                                 |                                     | 0.270                               | 0.266                         | 0.356                         |
|                   | Bottom side       | 0.473                    | 0.460                                 |                                       | 0.570                               |                                     | 0.933                         | 1.043                         |
| LTE Band 12_Ant 0 | Front             | 0.838                    | 0.110                                 | 0.070                                 | 0.200                               | 0.150                               | 1.018                         | 1.188                         |
|                   | Back              | 0.850                    | 0.310                                 | 0.080                                 | 0.440                               | 0.140                               | 1.240                         | 1.430                         |
|                   | Left side         |                          | 0.090                                 | 0.020                                 | 0.100                               | 0.060                               | 0.110                         | 0.160                         |
|                   | Right side        | 0.129                    |                                       |                                       |                                     |                                     | 0.129                         | 0.129                         |
|                   | Top side          | 0.339                    |                                       | 0.180                                 |                                     | 0.270                               | 0.519                         | 0.609                         |
|                   | Bottom side       | 0.439                    | 0.460                                 |                                       | 0.570                               |                                     | 0.899                         | 1.009                         |
| LTE Band 13_Ant 0 | Front             | 0.776                    | 0.110                                 | 0.070                                 | 0.200                               | 0.150                               | 0.956                         | 1.126                         |
|                   | Back              | 0.806                    | 0.310                                 | 0.080                                 | 0.440                               | 0.140                               | 1.196                         | 1.386                         |
|                   | Left side         |                          | 0.090                                 | 0.020                                 | 0.100                               | 0.060                               | 0.110                         | 0.160                         |
|                   | Right side        | 0.122                    |                                       |                                       |                                     |                                     | 0.122                         | 0.122                         |
|                   | Top side          | 0.482                    |                                       | 0.180                                 |                                     | 0.270                               | 0.662                         | 0.752                         |
|                   | Bottom side       | 0.463                    | 0.460                                 |                                       | 0.570                               |                                     | 0.923                         | 1.033                         |
| LTE Band 14_Ant 0 | Front             | 0.791                    | 0.110                                 | 0.070                                 | 0.200                               | 0.150                               | 0.971                         | 1.141                         |
|                   | Back              | 0.820                    | 0.310                                 | 0.080                                 | 0.440                               | 0.140                               | 1.210                         | 1.400                         |
|                   | Left side         |                          | 0.090                                 | 0.020                                 | 0.100                               | 0.060                               | 0.110                         | 0.160                         |
|                   | Right side        | 0.128                    |                                       |                                       |                                     |                                     | 0.128                         | 0.128                         |
|                   | Top side          | 0.448                    |                                       | 0.180                                 |                                     | 0.270                               | 0.628                         | 0.718                         |
|                   | Bottom side       | 0.452                    | 0.460                                 |                                       | 0.570                               |                                     | 0.912                         | 1.022                         |



# FCC SAR TEST REPORT

Report No. : FA041658-01A

| WWAN Band         | Exposure Position | 1                        | 2                                     | 3                                     | 4                                   | 5                                   | 1+2+3<br>Summed<br>1g SAR (W/kg) | 1+4+5<br>Summed<br>1g SAR (W/kg) |
|-------------------|-------------------|--------------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|----------------------------------|----------------------------------|
|                   |                   | WWAN<br>1g SAR<br>(W/kg) | 2.4GHz<br>Wi-Fi 0<br>1g SAR<br>(W/kg) | 2.4GHz<br>Wi-Fi 1<br>1g SAR<br>(W/kg) | 5GHz<br>Wi-Fi 0<br>1g SAR<br>(W/kg) | 5GHz<br>Wi-Fi 1<br>1g SAR<br>(W/kg) |                                  |                                  |
| LTE Band 25_Ant 0 | Front             | 0.753                    | 0.110                                 | 0.070                                 | 0.200                               | 0.150                               | 0.933                            | 1.103                            |
|                   | Back              | 0.909                    | 0.310                                 | 0.080                                 | 0.440                               | 0.140                               | 1.299                            | 1.489                            |
|                   | Left side         |                          | 0.090                                 | 0.020                                 | 0.100                               | 0.060                               | 0.110                            | 0.160                            |
|                   | Right side        | 0.232                    |                                       |                                       |                                     |                                     | 0.232                            | 0.232                            |
|                   | Top side          | 0.087                    |                                       | 0.180                                 |                                     | 0.270                               | 0.267                            | 0.357                            |
|                   | Bottom side       | 0.593                    | 0.460                                 |                                       | 0.570                               |                                     | 1.053                            | 1.163                            |
| LTE Band 26_Ant 0 | Front             | 0.842                    | 0.110                                 | 0.070                                 | 0.200                               | 0.150                               | 1.022                            | 1.192                            |
|                   | Back              | 0.868                    | 0.310                                 | 0.080                                 | 0.440                               | 0.140                               | 1.258                            | 1.448                            |
|                   | Left side         |                          | 0.090                                 | 0.020                                 | 0.100                               | 0.060                               | 0.110                            | 0.160                            |
|                   | Right side        | 0.140                    |                                       |                                       |                                     |                                     | 0.140                            | 0.140                            |
|                   | Top side          | 0.544                    |                                       | 0.180                                 |                                     | 0.270                               | 0.724                            | 0.814                            |
|                   | Bottom side       | 0.546                    | 0.460                                 |                                       | 0.570                               |                                     | 1.006                            | 1.116                            |
| LTE Band 30_Ant 0 | Front             | 0.475                    | 0.110                                 | 0.070                                 | 0.200                               | 0.150                               | 0.655                            | 0.825                            |
|                   | Back              | 0.643                    | 0.310                                 | 0.080                                 | 0.440                               | 0.140                               | 1.033                            | 1.223                            |
|                   | Left side         |                          | 0.090                                 | 0.020                                 | 0.100                               | 0.060                               | 0.110                            | 0.160                            |
|                   | Right side        | 0.876                    |                                       |                                       |                                     |                                     | 0.876                            | 0.876                            |
|                   | Top side          | 0.066                    |                                       | 0.180                                 |                                     | 0.270                               | 0.246                            | 0.336                            |
|                   | Bottom side       | 0.211                    | 0.460                                 |                                       | 0.570                               |                                     | 0.671                            | 0.781                            |
| LTE Band 41_Ant 0 | Front             | 0.328                    | 0.110                                 | 0.070                                 | 0.200                               | 0.150                               | 0.508                            | 0.678                            |
|                   | Back              | 0.289                    | 0.310                                 | 0.080                                 | 0.440                               | 0.140                               | 0.679                            | 0.869                            |
|                   | Left side         |                          | 0.090                                 | 0.020                                 | 0.100                               | 0.060                               | 0.110                            | 0.160                            |
|                   | Right side        | 0.993                    |                                       |                                       |                                     |                                     | 0.993                            | 0.993                            |
|                   | Top side          | 0.096                    |                                       | 0.180                                 |                                     | 0.270                               | 0.276                            | 0.366                            |
|                   | Bottom side       | 0.276                    | 0.460                                 |                                       | 0.570                               |                                     | 0.736                            | 0.846                            |
| LTE Band 48_Ant 4 | Front             | 0.636                    | 0.110                                 | 0.070                                 | 0.200                               | 0.150                               | 0.816                            | 0.986                            |
|                   | Back              | 0.216                    | 0.310                                 | 0.080                                 | 0.440                               | 0.140                               | 0.606                            | 0.796                            |
|                   | Left side         |                          | 0.090                                 | 0.020                                 | 0.100                               | 0.060                               | 0.110                            | 0.160                            |
|                   | Right side        | 0.233                    |                                       |                                       |                                     |                                     | 0.233                            | 0.233                            |
|                   | Top side          | 0.101                    |                                       | 0.180                                 |                                     | 0.270                               | 0.281                            | 0.371                            |
|                   | Bottom side       | 0.078                    | 0.460                                 |                                       | 0.570                               |                                     | 0.538                            | 0.648                            |
| LTE Band 66_Ant 0 | Front             | 0.438                    | 0.110                                 | 0.070                                 | 0.200                               | 0.150                               | 0.618                            | 0.788                            |
|                   | Back              | 0.281                    | 0.310                                 | 0.080                                 | 0.440                               | 0.140                               | 0.671                            | 0.861                            |
|                   | Left side         |                          | 0.090                                 | 0.020                                 | 0.100                               | 0.060                               | 0.110                            | 0.160                            |
|                   | Right side        | 0.969                    |                                       |                                       |                                     |                                     | 0.969                            | 0.969                            |
|                   | Top side          | 0.001                    |                                       | 0.180                                 |                                     | 0.270                               | 0.181                            | 0.271                            |
|                   | Bottom side       | 0.141                    | 0.460                                 |                                       | 0.570                               |                                     | 0.601                            | 0.711                            |
| LTE Band 66_Ant 8 | Front             | 0.464                    | 0.110                                 | 0.070                                 | 0.200                               | 0.150                               | 0.644                            | 0.814                            |
|                   | Back              | 0.678                    | 0.310                                 | 0.080                                 | 0.440                               | 0.140                               | 1.068                            | 1.258                            |
|                   | Left side         |                          | 0.090                                 | 0.020                                 | 0.100                               | 0.060                               | 0.110                            | 0.160                            |
|                   | Right side        |                          |                                       |                                       |                                     |                                     | 0.000                            | 0.000                            |
|                   | Top side          | 0.964                    |                                       | 0.180                                 |                                     | 0.270                               | 1.144                            | 1.234                            |
|                   | Bottom side       |                          | 0.460                                 |                                       | 0.570                               |                                     | 0.460                            | 0.570                            |
| LTE Band 71_Ant 0 | Front             | 0.769                    | 0.110                                 | 0.070                                 | 0.200                               | 0.150                               | 0.949                            | 1.119                            |
|                   | Back              | 0.729                    | 0.310                                 | 0.080                                 | 0.440                               | 0.140                               | 1.119                            | 1.309                            |
|                   | Left side         |                          | 0.090                                 | 0.020                                 | 0.100                               | 0.060                               | 0.110                            | 0.160                            |
|                   | Right side        | 0.114                    |                                       |                                       |                                     |                                     | 0.114                            | 0.114                            |
|                   | Top side          | 0.471                    |                                       | 0.180                                 |                                     | 0.270                               | 0.651                            | 0.741                            |
|                   | Bottom side       | 0.554                    | 0.460                                 |                                       | 0.570                               |                                     | 1.014                            | 1.124                            |

| WWAN Band        | Exposure Position | 1                | 2                 | 3                 | 4                | 5                | 1+2+3<br>Summed<br>1g SAR<br>(W/kg) | 1+4+5<br>Summed<br>1g SAR<br>(W/kg) |
|------------------|-------------------|------------------|-------------------|-------------------|------------------|------------------|-------------------------------------|-------------------------------------|
|                  |                   | WWAN             | 2.4GHz<br>Wi-Fi 0 | 2.4GHz<br>Wi-Fi 1 | 5GHz<br>Wi-Fi 0  | 5GHz<br>Wi-Fi 1  |                                     |                                     |
|                  |                   | 1g SAR<br>(W/kg) | 1g SAR<br>(W/kg)  | 1g SAR<br>(W/kg)  | 1g SAR<br>(W/kg) | 1g SAR<br>(W/kg) |                                     |                                     |
| 5G FR1 n25_Ant 8 | Front             | 0.239            | 0.110             | 0.070             | 0.200            | 0.150            | 0.419                               | 0.589                               |
|                  | Back              | 0.432            | 0.310             | 0.080             | 0.440            | 0.140            | 0.822                               | 1.012                               |
|                  | Left side         |                  | 0.090             | 0.020             | 0.100            | 0.060            | 0.110                               | 0.160                               |
|                  | Right side        |                  |                   |                   |                  |                  | 0.000                               | 0.000                               |
|                  | Top side          | 0.856            |                   | 0.180             |                  | 0.270            | 1.036                               | 1.126                               |
|                  | Bottom side       |                  | 0.460             |                   | 0.570            |                  | 0.460                               | 0.570                               |
| 5G FR1 n41_Ant 8 | Front             | 0.261            | 0.110             | 0.070             | 0.200            | 0.150            | 0.441                               | 0.611                               |
|                  | Back              | 0.322            | 0.310             | 0.080             | 0.440            | 0.140            | 0.712                               | 0.902                               |
|                  | Left side         |                  | 0.090             | 0.020             | 0.100            | 0.060            | 0.110                               | 0.160                               |
|                  | Right side        |                  |                   |                   |                  |                  | 0.000                               | 0.000                               |
|                  | Top side          | 0.944            |                   | 0.180             |                  | 0.270            | 1.124                               | 1.214                               |
|                  | Bottom side       |                  | 0.460             |                   | 0.570            |                  | 0.460                               | 0.570                               |
| 5G FR1 n66_Ant 0 | Front             | 0.783            | 0.110             | 0.070             | 0.200            | 0.150            | 0.963                               | 1.133                               |
|                  | Back              | 0.940            | 0.310             | 0.080             | 0.440            | 0.140            | 1.330                               | 1.520                               |
|                  | Left side         |                  | 0.090             | 0.020             | 0.100            | 0.060            | 0.110                               | 0.160                               |
|                  | Right side        | 0.935            |                   |                   |                  |                  | 0.935                               | 0.935                               |
|                  | Top side          | 0.003            |                   | 0.180             |                  | 0.270            | 0.183                               | 0.273                               |
|                  | Bottom side       | 0.562            | 0.460             |                   | 0.570            |                  | 1.022                               | 1.132                               |
| 5G FR1 n66_Ant 8 | Front             | 0.465            | 0.110             | 0.070             | 0.200            | 0.150            | 0.645                               | 0.815                               |
|                  | Back              | 0.674            | 0.310             | 0.080             | 0.440            | 0.140            | 1.064                               | 1.254                               |
|                  | Left side         |                  | 0.090             | 0.020             | 0.100            | 0.060            | 0.110                               | 0.160                               |
|                  | Right side        |                  |                   |                   |                  |                  | 0.000                               | 0.000                               |
|                  | Top side          | 0.856            |                   | 0.180             |                  | 0.270            | 1.036                               | 1.126                               |
|                  | Bottom side       |                  | 0.460             |                   | 0.570            |                  | 0.460                               | 0.570                               |
| 5G FR1 n71_Ant 0 | Front             | 0.874            | 0.110             | 0.070             | 0.200            | 0.150            | 1.054                               | 1.224                               |
|                  | Back              | 0.839            | 0.310             | 0.080             | 0.440            | 0.140            | 1.229                               | 1.419                               |
|                  | Left side         |                  | 0.090             | 0.020             | 0.100            | 0.060            | 0.110                               | 0.160                               |
|                  | Right side        | 0.088            |                   |                   |                  |                  | 0.088                               | 0.088                               |
|                  | Top side          | 0.536            |                   | 0.180             |                  | 0.270            | 0.716                               | 0.806                               |
|                  | Bottom side       | 0.646            | 0.460             |                   | 0.570            |                  | 1.106                               | 1.216                               |

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## **16. Uncertainty Assessment**

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is  $< 1.5$  W/kg and the measured 10-g SAR within a frequency band is  $< 3.75$  W/kg. The expanded SAR measurement uncertainty must be  $\leq 30\%$ , for a confidence interval of  $k = 2$ . If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg. Therefore, the measurement uncertainty table is not required in this report.

Declaration of Conformity:

The test results with all measurement uncertainty excluded is presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

## **17. References**

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
- [2] ANSI/IEEE Std. C95.1-1992, "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz", September 1992
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- [4] SPEAG DASY System Handbook
- [5] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [6] FCC KDB 941225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [7] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
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- [9] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.
- [10] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [11] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.