

# FCC SAR TEST REPORT

FCC ID : 2AQ68T99W175  
Equipment : 5G WWAN Module  
Brand Name : FOXCONN  
Model Name : T99W175  
Applicant : Hon Lin Technology Co., Ltd.  
11F, No.32, Jihu Rd., Neihu Dist., Taipei City, Taiwan 114  
Manufacturer : Hon Lin Technology Co., Ltd.  
11F, No.32, Jihu Rd., Neihu Dist., Taipei City, Taiwan 114  
Standard : FCC 47 CFR Part 2 (2.1093)

The product was installed into Notebook Computer (Brand Name DELL, Model Name: P148G, P148G001) during test.

The product was received on Jul 08, 2021 and testing was started from Aug 04, 2021 and completed on Aug 17, 2021. 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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Table of Contents

1. Statement of Compliance ..... 4
2. Guidance Applied..... 4
3. Equipment Under Test (EUT) Information ..... 5
3.1 General Information ..... 5
3.2 General LTE SAR Test and Reporting Considerations ..... 6
3.3 General 5G NR SAR Test and Reporting Considerations ..... 9
4. RF Exposure Limits.....10
4.1 Uncontrolled Environment.....10
4.2 Controlled Environment.....10
5. Specific Absorption Rate (SAR).....11
5.1 Introduction ..... 11
5.2 SAR Definition..... 11
6. System Description and Setup .....12
6.1 Test Site Location.....12
6.2 E-Field Probe .....13
6.3 Data Acquisition Electronics (DAE) .....13
6.4 Phantom.....14
6.5 Device Holder.....15
7. Measurement Procedures .....16
7.1 Spatial Peak SAR Evaluation.....16
7.2 Power Reference Measurement.....17
7.3 Area Scan .....17
7.4 Zoom Scan.....18
7.5 Volume Scan Procedures.....18
7.6 Power Drift Monitoring.....18
8. Test Equipment List.....19
9. System Verification .....20
9.1 Tissue Verification .....20
9.2 System Performance Check Results.....21
10. UMTS/LTE Output Power (Unit: dBm) .....22
11. 5G NR Output Power (Unit: dBm) .....88
12. WiFi/Bluetooth Output Power (Unit: dBm) .....97
13. Antenna Location .....105
14. SAR Test Results .....106
14.1 WWAN SAR .....108
14.2 WLAN/BT SAR.....109
14.3 LTE Band 41 Power Class 2 and Power Class 3 Linearity .....110
15. Simultaneous Transmission Analysis .....111
15.1 Body Exposure Conditions .....111
16. Uncertainty Assessment .....112
17. References.....112
Appendix A. Plots of System Performance Check
Appendix B. Plots of High SAR Measurement
Appendix C. DASYS Calibration Certificate
Appendix D. Test Setup Photos



### History of this test report

| Report No. | Version | Description             | Issued Date   |
|------------|---------|-------------------------|---------------|
| FA162928   | 01      | Initial issue of report | Sep. 22, 2021 |
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### 1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Hon Lin Technology Co., Ltd., 5G WWAN Module, T99W175, are as follows.

| Equipment Class  | Frequency Band   | Highest SAR Summary   |  | Highest Simultaneous Transmission 1g SAR (W/kg) |
|------------------|------------------|-----------------------|--|---|
|                  |                  | Body (Separation 0mm) |  |   |
|                  |                  | 1g SAR (W/kg)         |  |   |
| Licensed         | WCDMA II         | < 0.01                |  | < 0.01  |
|                  | WCDMA IV         | < 0.01                |  |   |
|                  | WCDMA V          | < 0.01                |  |   |
|                  | LTE Band 2       | < 0.01                |  |   |
|                  | LTE Band 7       | < 0.01                |  |   |
|                  | LTE Band 12 / 17 | < 0.01                |  |   |
|                  | LTE Band 13      | < 0.01                |  |   |
|                  | LTE Band 14      | < 0.01                |  |   |
|                  | LTE Band 25      | < 0.01                |  |   |
|                  | LTE Band 5 / 26  | < 0.01                |  |   |
|                  | LTE Band 30      | < 0.01                |  |   |
|                  | LTE Band 38 / 41 | < 0.01                |  |   |
|                  | LTE Band 4 / 66  | < 0.01                |  |   |
|                  | LTE Band 42 / 48 | < 0.01                |  |   |
|                  | FR1 n2           | < 0.01                |  |   |
|                  | FR1 n5           | < 0.01                |  |   |
|                  | FR1 n7           | < 0.01                |  |   |
|                  | FR1 n12          | < 0.01                |  |   |
|                  | FR1 n41          | < 0.01                |  |   |
| FR1 n66          | < 0.01           |                       |  |   |
| Date of Testing: |                  | 2021/8/4 ~ 2021/8/17  |  |   |

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 for Partial-Body 1g SAR, 4.0 W/kg for Product Specific 10g SAR) 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: **Carlie Tsai**

### 2. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards, the below KDB and IEC/IEEE standard may not including in the TAF code without accreditation.

- 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 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02
- 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
- IEC/IEEE 62209-1528:2020



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

#### 3.1 General Information

| Product Feature & Specification         |  |
|---|--|
| Equipment Name                          | 5G WWAN Module   |
| Brand Name                              | FOXCONN  |
| Model Name                              | T99W175  |
| FCC ID                                  | 2AQ68T99W175   |
| 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 42: 3550 MHz ~ 3600 MHz<br>LTE Band 48: 3550 MHz ~ 3700 MHz<br>LTE Band 66: 1710 MHz ~ 1780 MHz<br>5G NR n2 : 1850 MHz ~ 1910 MHz<br>5G NR n5 : 824 MHz ~ 849 MHz<br>5G NR n7 : 2500 MHz ~ 2570 MHz<br>5G NR n12 : 699 MHz ~ 716 MHz<br>5G NR n41 : 2496 MHz ~ 2690 MHz<br>5G NR n66 : 1710 MHz ~ 1780 MHz<br>RFID : 13.56 MHz |
| Mode                                    | RMC 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>RFID: ASK   |

| Host Information |                          |
|------------------|--------------------------|
| Equipment Name   | Notebook Computer        |
| Brand Name       | DELL                     |
| Model Name       | P148G, P148G001          |
| EUT Stage        | Design Verification Test |

| WLAN Module Information                 |   |
|---|---|
| FCC ID                                  | PD9AX210NG  |
| Integrated WLAN Module                  | Brand Name: Intel<br>Model Name: AX210NGW   |
| Wireless Technology and Frequency Range | WLAN 2.4 GHz Band: 2400 MHz ~ 2483.5 MHz<br>WLAN 5.2 GHz Band: 5150 MHz ~ 5250 MHz<br>WLAN 5.3 GHz Band: 5250 MHz ~ 5350 MHz<br>WLAN 5.6 GHz Band: 5470 MHz ~ 5725 MHz<br>WLAN 5.8 GHz Band: 5725 MHz ~ 5850 MHz<br>WLAN 6E: 5925 MHz ~ 6425 MHz, 6425 MHz ~ 6525 MHz, 6525 MHz ~ 6875 MHz, 6875 MHz ~ 7125 MHz<br>Bluetooth: 2400 MHz ~ 2483.5 MHz |
| Mode                                    | WLAN: 802.11a/b/g/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160<br>Bluetooth BR/EDR/LE  |
| Remark:                                 | 1. The Intel AX210NGW (FCC ID: PD9AX210NG) WLAN/BT module is also integrated into DELL P148G, P148G001 host. In this report section 14.2 additional WLAN/BT SAR to evaluated Sim-Tx analysis with WWAN transmitter  |



**3.2 General LTE SAR Test and Reporting Considerations**

| Summarized necessary items addressed in KDB 941225 D05 v02r05 |   |            |   |        |        |        |          |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
|---|---|------------|---|--------|--------|--------|----------|--|----------|---------|---------|-------|--------|--------|--------|------|-----|-----|-----|------|------|------|-----|--------|-----|-----|-----|------|------|------|-----|--------|-----|-----|-----|------|------|------|-----|--------|-----|-----|-----|------|------|------|-----|--------|-----|-----|-----|------|------|------|-----|---------|-----|--|--|--|--|--|-----|
| FCC ID  | 2AQ68T99W175  |            |   |        |        |        |          |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| Equipment Name  | 5G WWAN <b>Module</b>   |            |   |        |        |        |          |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| 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 42: 3550 MHz ~ 3600 MHz<br>LTE Band 48: 3550 MHz ~ 3700 MHz<br>LTE Band 66: 1710 MHz ~ 1780 MHz  |            |   |        |        |        |          |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| Channel Bandwidth   | LTE Band 2: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 4: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 5: 1.4MHz, 3MHz, 5MHz, 10MHz<br>LTE Band 7: 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 42: 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 66: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz   |            |   |        |        |        |          |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| uplink modulations used                                       | QPSK / 16QAM / 64QAM / 256QAM   |            |   |        |        |        |          |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| LTE Voice / Data requirements                                 | Data only   |            |   |        |        |        |          |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| LTE MPR permanently built-in by design                        | <p align="center"><b>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</b></p> <table border="1"> <thead> <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> </thead> <tbody> <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" style="text-align: center;">≥ 1</td> <td>≤ 5</td> </tr> </tbody> </table> | 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 |
| 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                          | Inter-Band and Intra-Band possible combinations and the detail power measurement please referred to section 10.   |            |   |        |        |        |          |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| LTE Carrier Aggregation Additional Information                | This device supports maximum of 6 carriers in the downlink and 2 carriers in the uplink. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.  |            |   |        |        |        |          |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |



| 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 |             | 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   | 20407             | 824.7       | 20415            | 825.5       | 20425            | 826.5       | 20450            | 829         | 20475            | 830.5       | 20500            | 832         |
| M   | 20525             | 836.5       | 20525            | 836.5       | 20525            | 836.5       | 20525            | 836.5       | 20525            | 836.5       | 20525            | 836.5       |
| H   | 20643             | 848.3       | 20635            | 847.5       | 20625            | 846.5       | 20600            | 844         | 20575            | 842.5       | 20550            | 840         |
| LTE Band 7  |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |
|   | Bandwidth 5 MHz   |             | Bandwidth 10 MHz |             | Bandwidth 15 MHz |             | Bandwidth 20 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        | 20875            | 2512.5      | 20900            | 2515        |
| M   | 21100             | 2535        | 21100            | 2535        | 21100            | 2535        | 21100            | 2535        | 21100            | 2535        | 21100            | 2535        |
| H   | 21425             | 2567.5      | 21400            | 2565        | 21375            | 2562.5      | 21350            | 2560        | 21325            | 2557.5      | 21300            | 2555        |
| LTE Band 12   |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |
|   | 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   | 23017             | 699.7       | 23025            | 700.5       | 23035            | 701.5       | 23060            | 704         | 23085            | 706.5       | 23110            | 709         |
| M   | 23095             | 707.5       | 23095            | 707.5       | 23095            | 707.5       | 23095            | 707.5       | 23095            | 707.5       | 23095            | 707.5       |
| H   | 23173             | 715.3       | 23165            | 714.5       | 23155            | 713.5       | 23130            | 711         | 23105            | 708.5       | 23080            | 706         |
| LTE Band 13   |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |
|   | Bandwidth 5 MHz   |             |                  |             | Bandwidth 10 MHz |             |                  |             | Bandwidth 10 MHz |             |                  |             |
|   | Channel #         |             | Freq.(MHz)       |             | Channel #        |             | Freq.(MHz)       |             | Channel #        |             | Freq.(MHz)       |             |
| L   | 23205             |             | 779.5            |             | 23230            |             | 782              |             | 23255            |             | 785.5            |             |
| M   | 23230             |             | 782              |             | 23230            |             | 782              |             | 23230            |             | 782              |             |
| H   | 23255             |             | 784.5            |             | 23230            |             | 782              |             | 23255            |             | 785.5            |             |
| LTE Band 14   |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |
|   | Bandwidth 5 MHz   |             |                  |             | Bandwidth 10 MHz |             |                  |             | Bandwidth 10 MHz |             |                  |             |
|   | Channel #         |             | Channel #        |             | Channel #        |             | Freq.(MHz)       |             | Channel #        |             | Freq.(MHz)       |             |
| L   | 23305             |             | 790.5            |             | 23330            |             | 793              |             | 23355            |             | 795.5            |             |
| M   | 23330             |             | 793              |             | 23330            |             | 793              |             | 23330            |             | 793              |             |
| H   | 23355             |             | 795.5            |             | 23330            |             | 793              |             | 23355            |             | 795.5            |             |
| LTE Band 17   |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |
|   | Bandwidth 5 MHz   |             |                  |             | Bandwidth 10 MHz |             |                  |             | Bandwidth 10 MHz |             |                  |             |
|   | Channel #         |             | Freq.(MHz)       |             | Channel #        |             | Freq. (MHz)      |             | Channel #        |             | Freq. (MHz)      |             |
| L   | 23755             |             | 706.5            |             | 23780            |             | 709              |             | 23805            |             | 711.5            |             |
| M   | 23790             |             | 710              |             | 23790            |             | 710              |             | 23790            |             | 710              |             |
| H   | 23825             |             | 713.5            |             | 23800            |             | 711              |             | 23825            |             | 713.5            |             |



| 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 |             | Bandwidth 20 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       | 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) |                  |             |                  |             |
| 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) |                  |             |                  |             |
| 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 42 |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |
|             | Bandwidth 5 MHz   |             | Bandwidth 10 MHz |             | Bandwidth 15 MHz |             | Bandwidth 20 MHz |             |                  |             |                  |             |
|             | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |                  |             |                  |             |
| L           | 43315             | 3552.5      | 43140            | 3555        | 43165            | 3557.5      | 43190            | 3560        |                  |             |                  |             |
| M           | 43340             | 3575        | 43340            | 3575        | 43340            | 3575        | 43340            | 3575        |                  |             |                  |             |
| H           | 43565             | 3597.5      | 43540            | 3595        | 43515            | 3592.5      | 43490            | 3590        |                  |             |                  |             |
| 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) |                  |             |                  |             |
| 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        |                  |             |                  |             |
| 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        |





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

| 5G NR Information   |   |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
|---|---|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|
| FCC ID  | 2AQ68T99W175  |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
| Equipment Name  | 5G WWAN <b>Module</b>   |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
| Operating Frequency Range of each 5G NR transmission band | 5G NR n2: 1850 MHz ~ 1910 MHz<br>5G NR n5: 824 MHz ~ 849 MHz<br>5G NR n7: 2500 MHz ~ 2570 MHz<br>5G NR n12: 699 MHz ~ 716 MHz<br>5G NR n41: 2496 MHz ~ 2690 MHz<br>5G NR n66: 1710 MHz ~ 1780 MHz   |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
| Channel Bandwidth   | 5G NR n2: 5MHz, 10MHz, 15MHz, 20MHz<br>5G NR n5: 5MHz, 10MHz, 15MHz, 20MHz<br>5G NR n7: 5MHz, 10MHz, 15MHz, 20MHz<br>5G NR n12: 5MHz, 10MHz, 15MHz<br>5G NR n41: 20MHz, 40MHz, 50MHz, 60MHz, 80MHz, 90MHz, 100MHz<br>5G NR n66: 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 B5/12/13/48   |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
| LTE Anchor Bands for n5                                   | LTE B2/7/48/66  |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
| LTE Anchor Bands for n7                                   | LTE B5/12   |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
| LTE Anchor Bands for n12                                  | LTE B2/66   |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
| LTE Anchor Bands for n41                                  | LTE B2/25/26/66   |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
| LTE Anchor Bands for n66                                  | LTE B5/12/13/48   |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
| 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 5   |   |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
|   | Bandwidth 5MHz  |             | Bandwidth 10MHz |             | Bandwidth 15MHz |             | Bandwidth 20MHz |             |                 |             |                 |             |                 |             |
|   | Ch. #   | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) |                 |             |                 |             |                 |             |
| L   | 165300  | 826.5       | 165800          | 829         | 166300          | 831.5       | 166800          | 834         |                 |             |                 |             |                 |             |
| M   | 167300  | 836.5       | 167300          | 836.5       | 167300          | 836.5       | 167300          | 836.5       |                 |             |                 |             |                 |             |
| H   | 169300  | 846.5       | 168800          | 844         | 168300          | 841.5       | 167800          | 839         |                 |             |                 |             |                 |             |
| NR Band 7   |   |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
|   | Bandwidth 5MHz  |             | Bandwidth 10MHz |             | Bandwidth 15MHz |             | Bandwidth 20MHz |             |                 |             |                 |             |                 |             |
|   | Ch. #   | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) |                 |             |                 |             |                 |             |
| L   | 500500  | 2502.5      | 501000          | 2505        | 501500          | 2507.5      | 502000          | 2510        |                 |             |                 |             |                 |             |
| M   | 507000  | 2535        | 507000          | 2535        | 507000          | 2535        | 507000          | 2535        |                 |             |                 |             |                 |             |
| H   | 513500  | 2567.5      | 513000          | 2565        | 512500          | 2562.5      | 512000          | 2560        |                 |             |                 |             |                 |             |
| NR Band 12  |   |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
|   | Bandwidth 5MHz  |             | Bandwidth 10MHz |             | Bandwidth 15MHz |             |                 |             |                 |             |                 |             |                 |             |
|   | Ch. #   | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) |                 |             |                 |             |                 |             |
| L   | 140300  | 701.5       | 140800          | 704         | 141300          | 706.5       |                 |             |                 |             |                 |             |                 |             |
| M   | 141500  | 707.5       | 141500          | 707.5       | 141500          | 707.5       |                 |             |                 |             |                 |             |                 |             |
| H   | 142700  | 713.5       | 142200          | 711         | 141700          | 708.5       |                 |             |                 |             |                 |             |                 |             |
| NR Band 41  |   |             |                 |             |                 |             |                 |             |                 |             |                 |             |                 |             |
|   | Bandwidth20MHz  |             | Bandwidth 40MHz |             | Bandwidth 50MHz |             | Bandwidth 60MHz |             | Bandwidth 80MHz |             | Bandwidth 90MHz |             | Bandwidth100MHz |             |
|   | 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        |                 |             |                 |             |                 |             |



4. RF Exposure Limits

4.1 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.

4.2 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)

Table with 3 columns: Whole-Body, Partial-Body, Hands, Wrists, Feet and Ankles. Values: 0.4, 8.0, 20.0

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

Table with 3 columns: Whole-Body, Partial-Body, Hands, Wrists, Feet and Ankles. Values: 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.



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

### **5.1 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.

### **5.2 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 ( $\rho$ ). The equation description is as below:

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

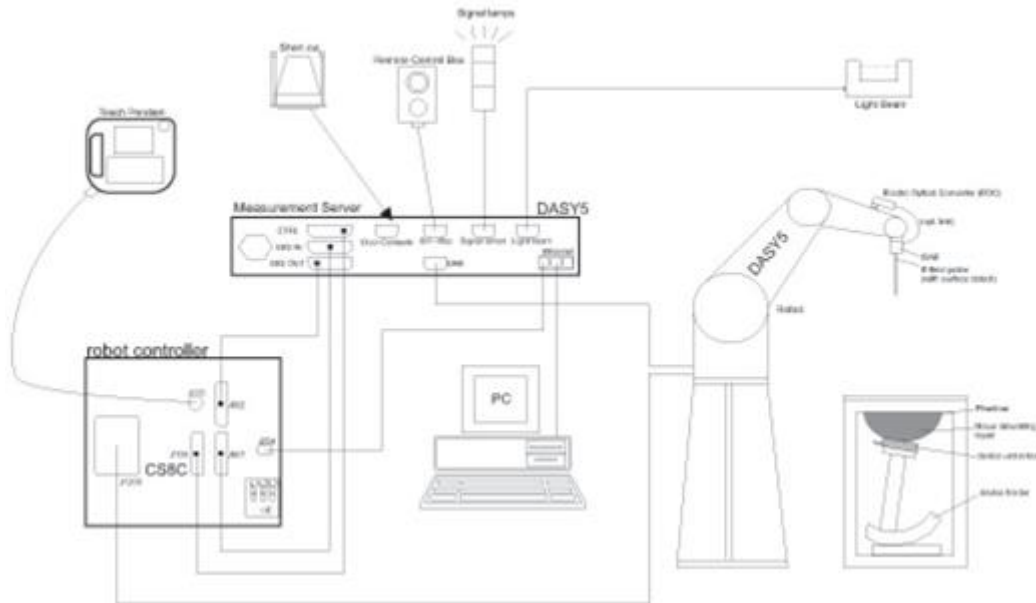
SAR is expressed in units of Watts per kilogram (W/kg)

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

Where:  $\sigma$  is the conductivity of the tissue,  $\rho$  is the mass density of the tissue and E is the RMS electrical field strength.

## 6. 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.

### 6.1 Test Site Location


The SAR measurement facilities used to collect data are within both Sporton Lab list below test site location are accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190 and 3786) and the FCC designation No. TW1190 and TW3786 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test.

| Test Site          | EMC & Wireless Communications Laboratory                                |          | Wensan Laboratory  |          |          |
|--------------------|---|----------|--|----------|----------|
| Test Site Location | TW1190<br>No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan |          | TW3786<br>No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan |          |          |
| Test Site No.      | SAR01-HY  | SAR03-HY | SAR08-HY   | SAR09-HY | SAR15-HY |
|                    | SAR04-HY  | SAR05-HY | SAR11-HY   | SAR12-HY |          |
|                    | SAR06-HY  | SAR10-HY | SAR13-HY   | SAR14-HY |          |


**6.2 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   |  |

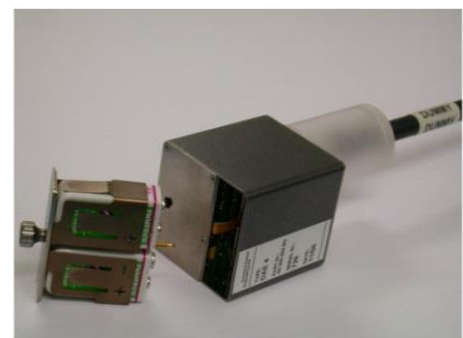
**<EX3DV4 Probe>**

|                      |   |   |
|----------------------|---|---|
| <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                      |   |

**6.3 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**

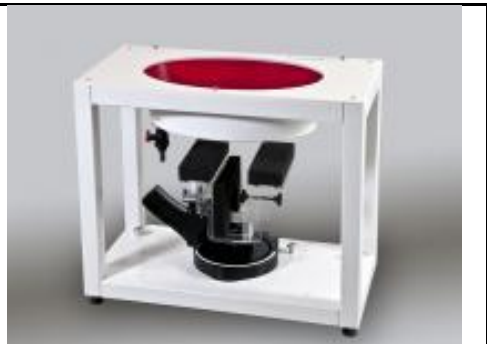
**6.4 Phantom**

**<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.

## **6.5 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



## **7. 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

### **7.1 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





**7.2 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.

**7.3 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.

|  | ≤ 3 GHz   | > 3 GHz  |
|--|---|--|
| Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface | 5 ± 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° ± 1°  | 20° ± 1°   |
| Maximum area scan spatial resolution: $\Delta x_{Area}, \Delta y_{Area}$                               | ≤ 2 GHz: ≤ 15 mm<br>2 – 3 GHz: ≤ 12 mm  | 3 – 4 GHz: ≤ 12 mm<br>4 – 6 GHz: ≤ 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 ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device. |  |

**7.4 Zoom Scan**

Zoom scans are used 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 shoes 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.

|  |                                    | ≤ 3 GHz  | > 3 GHz   |  |
|--|------------------------------------|--|---|--|
| Maximum zoom scan spatial resolution: $\Delta x_{Zoom}, \Delta y_{Zoom}$   |                                    | $\leq 2$ 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: $\Delta z_{Zoom}(n)$ | $\leq 5$ mm  | 3 – 4 GHz: $\leq 4$ mm<br>4 – 5 GHz: $\leq 3$ mm<br>5 – 6 GHz: $\leq 2$ mm    |  |
|  | graded grid                        | $\Delta z_{Zoom}(1)$ : 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 |
|  |                                    | $\Delta z_{Zoom}(n>1)$ : between subsequent points                                   | $\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$   |  |
| 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.<br>* 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. |                                    |  |   |  |

**7.5 Volume Scan Procedures**

The volume scan is used for 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.

**7.6 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.



### 8. 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. 05, 2022 |
| SPEAG         | 835MHz System Validation Kit <sup>(2)</sup>  | D835V2          | 4d167         | Nov. 25, 2019 | Nov. 23, 2021 |
| SPEAG         | 1750MHz System Validation Kit <sup>(2)</sup> | D1750V2         | 1112          | Mar. 07, 2019 | Mar. 04, 2022 |
| SPEAG         | 1900MHz System Validation Kit <sup>(2)</sup> | D1900V2         | 5d041         | Sep. 11, 2018 | Sep. 08, 2021 |
| SPEAG         | 2300MHz System Validation Kit <sup>(2)</sup> | D2300V2         | 1006          | Jan. 28, 2019 | Jan. 25, 2022 |
| SPEAG         | 2450MHz System Validation Kit <sup>(2)</sup> | D2450V2         | 736           | Aug. 31, 2018 | Aug. 28, 2021 |
| SPEAG         | 2600MHz System Validation Kit <sup>(2)</sup> | D2600V2         | 1008          | Aug. 31, 2018 | Aug. 28, 2021 |
| SPEAG         | 3500MHz System Validation Kit <sup>(2)</sup> | D3500V2         | 1014          | Jan. 29, 2019 | Jan. 26, 2022 |
| SPEAG         | 3700MHz System Validation Kit <sup>(2)</sup> | D3700V2         | 1006          | Mar. 05, 2019 | Mar. 02, 2022 |
| SPEAG         | 5GHz System Validation Kit <sup>(2)</sup>    | D5GHzV2         | 1128          | Dec. 16, 2019 | Dec. 14, 2021 |
| SPEAG         | 6500MHz System Validation Kit <sup>(2)</sup> | D6.5GHzV2       | 1003          | Feb. 04, 2020 | Feb. 02, 2022 |
| SPEAG         | Data Acquisition Electronics                 | DAE4            | 316           | Jan. 19, 2021 | Jan. 18, 2022 |
| SPEAG         | Data Acquisition Electronics                 | DAE4            | 1311          | Aug. 25, 2020 | Aug. 24, 2021 |
| SPEAG         | Dosimetric E-Field Probe                     | EX3DV4          | 3925          | Apr. 23, 2021 | Apr. 22, 2022 |
| SPEAG         | Dosimetric E-Field Probe                     | EX3DV4          | 3976          | Jan. 27, 2021 | Jan. 26, 2022 |
| Testo         | Hygro meter                                  | 608-H1          | 45196600      | Nov. 10, 2020 | Nov. 09, 2021 |
| Testo         | Hygro meter                                  | 608-H1          | 45207528      | Nov. 10, 2020 | Nov. 09, 2021 |
| Anritsu       | Radio Communication Analyzer                 | MT8821C         | 6201341950    | Nov. 10, 2020 | Nov. 09, 2021 |
| Keysight      | Wireless Communication Test Set              | E5515C          | MY50266977    | May. 12, 2021 | May. 11, 2022 |
| R&S           | BT Base Station                              | CBT             | 100815        | Feb. 19, 2021 | Feb. 18, 2022 |
| SPEAG         | Device Holder                                | N/A             | N/A           | N/A           | N/A           |
| Anritsu       | Signal Generator                             | MG3710A         | 6201502524    | Nov. 11, 2020 | Nov. 10, 2021 |
| Keysight      | ENA Network Analyzer                         | E5071C          | MY46104758    | Sep. 03, 2020 | Sep. 02, 2021 |
| SPEAG         | Dielectric Probe Kit                         | DAK-3.5         | 1126          | Sep. 16, 2020 | Sep. 15, 2021 |
| LINE SEIKI    | Digital Thermometer                          | DTM3000-spezial | 2942          | Nov. 06, 2020 | Nov. 05, 2021 |
| 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         | 1804003       | Oct. 21, 2020 | Oct. 20, 2021 |
| Anritsu       | Power Sensor                                 | MA2411B         | 1726150       | Oct. 21, 2020 | Oct. 20, 2021 |
| Anritsu       | Spectrum Analyzer                            | MS2830A         | 6201396378    | Jul. 16, 2021 | Jul. 15, 2022 |
| Anritsu       | Spectrum Analyzer                            | N9010A          | MY53470118    | Jan. 15, 2021 | Jan. 14, 2022 |
| Mini-Circuits | Power Amplifier                              | ZVE-8G+         | 6418          | Oct. 21, 2020 | Oct. 20, 2021 |
| Mini-Circuits | Power Amplifier                              | ZVE-8G+         | 479102029     | Aug. 26, 2020 | Aug. 25, 2021 |
| ATM           | Dual Directional Coupler                     | C122H-10        | P610410z-02   | Note 1        |               |
| Warison       | Directional Coupler                          | WCOU-10-50S-10  | WR889BMC4B1   | 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.



## 9. System Verification

### 9.1 Tissue Verification

The tissue dielectric parameters of tissue-equivalent media used for SAR measurements must be characterized within a temperature range of 18°C to 25°C, measured with calibrated instruments and apparatuses, such as network analyzers and temperature probes. The temperature of the tissue-equivalent medium during SAR measurement must also be within 18°C to 25°C and within ± 2°C of the temperature when the tissue parameters are characterized. The tissue dielectric measurement system must be calibrated before use. The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements.

The liquid tissue depth was at least 15cm in the phantom for all SAR testing

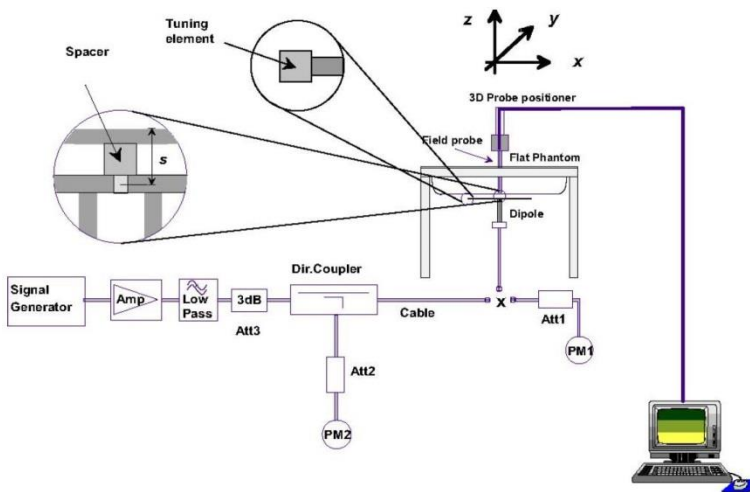
#### <Tissue Dielectric Parameter Check Results>

| Frequency (MHz) | Liquid Temp. (°C) | Conductivity (σ) | Permittivity (ε <sub>r</sub> ) | Conductivity Target (σ) | Permittivity Target (ε <sub>r</sub> ) | Delta (σ) (%) | Delta (ε <sub>r</sub> ) (%) | Limit (%) | Date      |
|-----------------|-------------------|------------------|--------------------------------|-------------------------|---------------------------------------|---------------|-----------------------------|-----------|-----------|
| 750             | 22.3              | 0.904            | 41.980                         | 0.89                    | 41.90                                 | 1.57          | 0.19                        | ±5        | 2021/8/5  |
| 835             | 22.3              | 0.869            | 42.487                         | 0.90                    | 41.50                                 | -3.44         | 2.38                        | ±5        | 2021/8/5  |
| 1750            | 22.3              | 1.382            | 40.730                         | 1.37                    | 40.10                                 | 0.88          | 1.57                        | ±5        | 2021/8/4  |
| 1750            | 22.3              | 1.382            | 40.730                         | 1.37                    | 40.10                                 | 0.88          | 1.57                        | ±5        | 2021/8/4  |
| 1750            | 22.3              | 1.348            | 39.130                         | 1.37                    | 40.10                                 | -1.61         | -2.42                       | ±5        | 2021/8/16 |
| 1900            | 22.3              | 1.429            | 39.314                         | 1.40                    | 40.00                                 | 2.07          | -1.72                       | ±5        | 2021/8/4  |
| 1900            | 22.3              | 1.396            | 39.791                         | 1.40                    | 40.00                                 | -0.29         | -0.52                       | ±5        | 2021/8/16 |
| 2300            | 22.6              | 1.623            | 41.116                         | 1.67                    | 39.50                                 | -2.81         | 4.09                        | ±5        | 2021/8/6  |
| 2450            | 22.6              | 1.851            | 39.267                         | 1.80                    | 39.20                                 | 2.83          | 0.17                        | ±5        | 2021/8/14 |
| 2600            | 22.6              | 1.963            | 40.055                         | 1.96                    | 39.00                                 | 0.15          | 2.71                        | ±5        | 2021/8/6  |
| 2600            | 22.3              | 1.940            | 38.107                         | 1.96                    | 39.00                                 | -1.02         | -2.29                       | ±5        | 2021/8/16 |
| 3500            | 22.3              | 2.996            | 38.487                         | 2.91                    | 37.90                                 | 2.96          | 1.55                        | ±5        | 2021/8/5  |
| 3700            | 22.3              | 3.200            | 38.165                         | 3.12                    | 37.70                                 | 2.56          | 1.23                        | ±5        | 2021/8/5  |
| 5250            | 22.7              | 4.645            | 35.925                         | 4.71                    | 35.95                                 | -1.38         | -0.07                       | ±5        | 2021/8/15 |
| 5600            | 22.7              | 4.988            | 35.414                         | 5.07                    | 35.50                                 | -1.62         | -0.24                       | ±5        | 2021/8/15 |
| 5750            | 22.7              | 5.144            | 35.207                         | 5.22                    | 35.35                                 | -1.46         | -0.40                       | ±5        | 2021/8/15 |
| 6500            | 22.5              | 6.100            | 35.600                         | 6.07                    | 34.50                                 | 0.49          | 3.19                        | ±5        | 2021/8/17 |

**9.2 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.

| Test Site | 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 (%) |
|-----------|-----------|-----------------|------------------|-------------------|-----------------|-------------|------------------------|------------------------|--------------------------|---------------|
| SAR05     | 2021/8/5  | 750             | 50               | D750V3-1107       | EX3DV4 - SN3925 | DAE4 Sn1311 | 0.406                  | 8.32                   | 8.12                     | -2.40         |
| SAR05     | 2021/8/5  | 835             | 50               | D835V2-4d167      | EX3DV4 - SN3925 | DAE4 Sn1311 | 0.459                  | 9.55                   | 9.18                     | -3.87         |
| SAR05     | 2021/8/4  | 1750            | 50               | D1750V2-1112      | EX3DV4 - SN3925 | DAE4 Sn1311 | 1.760                  | 36.70                  | 35.2                     | -4.09         |
| SAR05     | 2021/8/4  | 1750            | 50               | D1750V2-1112      | EX3DV4 - SN3925 | DAE4 Sn316  | 1.810                  | 36.70                  | 36.2                     | -1.36         |
| SAR05     | 2021/8/16 | 1750            | 50               | D1750V2-1112      | EX3DV4 - SN3925 | DAE4 Sn316  | 1.710                  | 36.70                  | 34.2                     | -6.81         |
| SAR05     | 2021/8/4  | 1900            | 50               | D1900V2-5d041     | EX3DV4 - SN3925 | DAE4 Sn1311 | 1.920                  | 40.20                  | 38.4                     | -4.48         |
| SAR05     | 2021/8/16 | 1900            | 50               | D1900V2-5d041     | EX3DV4 - SN3925 | DAE4 Sn316  | 1.870                  | 40.20                  | 37.4                     | -6.97         |
| SAR05     | 2021/8/6  | 2300            | 50               | D2300V2-1006      | EX3DV4 - SN3925 | DAE4 Sn1311 | 2.290                  | 48.70                  | 45.8                     | -5.95         |
| SAR05     | 2021/8/14 | 2450            | 50               | D2450V2-736       | EX3DV4 - SN3925 | DAE4 Sn316  | 2.510                  | 52.70                  | 50.2                     | -4.74         |
| SAR05     | 2021/8/6  | 2600            | 50               | D2600V2-1008      | EX3DV4 - SN3925 | DAE4 Sn1311 | 2.610                  | 56.40                  | 52.2                     | -7.45         |
| SAR05     | 2021/8/16 | 2600            | 50               | D2600V2-1008      | EX3DV4 - SN3925 | DAE4 Sn316  | 2.640                  | 56.40                  | 52.8                     | -6.38         |
| SAR05     | 2021/8/5  | 3500            | 50               | D3500V2-1014      | EX3DV4 - SN3925 | DAE4 Sn1311 | 3.160                  | 67.90                  | 63.2                     | -6.92         |
| SAR05     | 2021/8/5  | 3700            | 50               | D3700V2-1006      | EX3DV4 - SN3925 | DAE4 Sn1311 | 3.170                  | 67.30                  | 63.4                     | -5.79         |
| SAR05     | 2021/8/15 | 5250            | 50               | D5GHzV2-1128-5250 | EX3DV4 - SN3925 | DAE4 Sn316  | 3.940                  | 80.00                  | 78.8                     | -1.50         |
| SAR05     | 2021/8/15 | 5600            | 50               | D5GHzV2-1128-5600 | EX3DV4 - SN3925 | DAE4 Sn316  | 4.200                  | 82.40                  | 84                       | 1.94          |
| SAR05     | 2021/8/15 | 5750            | 50               | D5GHzV2-1128-5750 | EX3DV4 - SN3925 | DAE4 Sn316  | 3.970                  | 79.10                  | 79.4                     | 0.38          |
| SAR06     | 2021/8/17 | 6500            | 100              | D6.5GHzV2-1003    | EX3DV4 - SN3976 | DAE4 Sn316  | 30.700                 | 299.00                 | 307                      | 2.68          |



**Fig 8.3.1 System Performance Check Setup**



**Fig 8.3.2 Setup Photo**

**10. 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 DPDCCH, 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-TFCl
  - viii. Confirm that E-TFCl is equal to the target E-TFCl of 75 for sub-test 1, and other subtest's E-TFCl
- 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) | $\beta_c/\beta_d$ | $\beta_{HS}$ (Note1) | $\beta_{ec}$ | $\beta_{ed}$ (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-TFCl |
|----------|----------------|----------------|----------------|-------------------|----------------------|--------------|--|-------------------|----------------------|------------------|----------------------------|-------------------|--------|
| 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<br>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  $\beta_c/\beta_d = 12/15$ ,  $\beta_{hs}/\beta_c = 24/15$ . 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  $\beta_c/\beta_d$  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:**

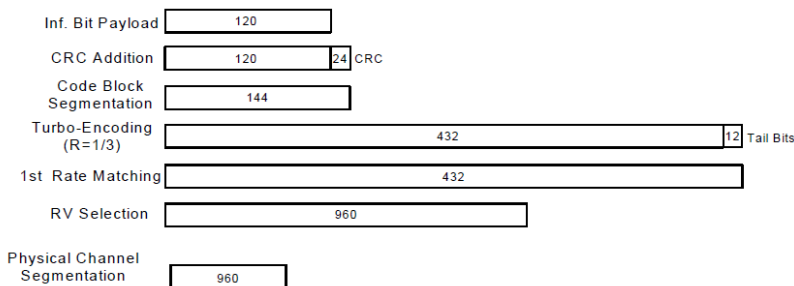
- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration below
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
  - i. Set RMC 12.2Kbps + HSDPA mode.
  - ii. Set Cell Power = -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.<br>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 ≤ ¼ 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 ≤ 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 ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

| 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       | 23.33    | 23.47 | 23.28  | 24.50               | 23.47    | 23.46  | 23.61  | 24.50               | 23.76   | 23.88 | 23.81 | 24.50               |
| 3GPP Rel 6      | HSDPA Subtest-1    | 22.34    | 22.48 | 22.27  | 23.50               | 22.48    | 22.45  | 22.60  | 23.50               | 22.76   | 22.87 | 22.80 | 23.50               |
| 3GPP Rel 6      | HSDPA Subtest-2    | 22.33    | 22.47 | 22.26  | 23.50               | 22.48    | 22.46  | 22.61  | 23.50               | 22.77   | 22.86 | 22.79 | 23.50               |
| 3GPP Rel 6      | HSDPA Subtest-3    | 21.85    | 21.96 | 21.74  | 23.00               | 22.00    | 21.96  | 22.10  | 23.00               | 21.76   | 21.85 | 21.81 | 23.00               |
| 3GPP Rel 6      | HSDPA Subtest-4    | 21.84    | 21.95 | 21.73  | 23.00               | 21.98    | 21.99  | 22.02  | 23.00               | 21.74   | 21.84 | 21.78 | 23.00               |
| 3GPP Rel 8      | DC-HSDPA Subtest-1 | 22.34    | 22.48 | 22.27  | 23.50               | 22.48    | 22.45  | 22.60  | 23.50               | 22.76   | 22.87 | 22.80 | 23.50               |
| 3GPP Rel 8      | DC-HSDPA Subtest-2 | 22.33    | 22.47 | 22.26  | 23.50               | 22.48    | 22.46  | 22.61  | 23.50               | 22.77   | 22.86 | 22.79 | 23.50               |
| 3GPP Rel 8      | DC-HSDPA Subtest-3 | 21.85    | 21.96 | 21.74  | 23.00               | 22.00    | 21.96  | 22.10  | 23.00               | 21.76   | 21.85 | 21.81 | 23.00               |
| 3GPP Rel 8      | DC-HSDPA Subtest-4 | 21.84    | 21.95 | 21.73  | 23.00               | 21.98    | 21.99  | 22.02  | 23.00               | 21.74   | 21.84 | 21.78 | 23.00               |
| 3GPP Rel 6      | HSUPA Subtest-1    | 22.51    | 22.55 | 22.43  | 23.50               | 22.49    | 22.51  | 22.66  | 23.50               | 22.56   | 22.66 | 22.74 | 23.50               |
| 3GPP Rel 6      | HSUPA Subtest-2    | 20.44    | 20.49 | 20.41  | 21.50               | 20.44    | 20.45  | 20.64  | 21.50               | 20.55   | 20.65 | 20.73 | 21.50               |
| 3GPP Rel 6      | HSUPA Subtest-3    | 21.46    | 21.44 | 21.49  | 22.50               | 21.46    | 21.49  | 21.48  | 22.50               | 21.57   | 21.71 | 21.69 | 22.50               |
| 3GPP Rel 6      | HSUPA Subtest-4    | 20.43    | 20.47 | 20.39  | 21.50               | 20.58    | 20.51  | 20.49  | 21.50               | 20.54   | 20.66 | 20.71 | 21.50               |
| 3GPP Rel 6      | HSUPA Subtest-5    | 22.44    | 22.63 | 22.39  | 23.50               | 22.55    | 22.61  | 22.64  | 23.50               | 22.58   | 22.68 | 22.77 | 23.50               |

**<LTE Conducted Power>**

**General Note:**

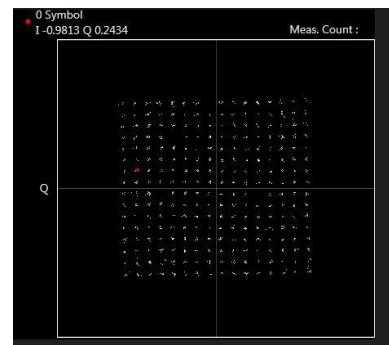
1. Anritsu MT8821C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested 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  $\leq 0.8$  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.
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  $\leq 1.45$  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  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4/B5/B12/B17/B26/B38 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 4/5/17/38/42 SAR test was covered by Band 66/26/12/41/48; 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 16QAM, 64QAM, 256QAM 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 16QAM, 64QAM, 256QAM signal modulation are correct.



**16QAM**



**64QAM**



**256QAM**



<LTE Band 2 Main>

| 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         |            |         |           | 18700                 | 18900                    | 19100                  |                     |          |                     |          |
| Frequency (MHz) |            |         |           | 1860                  | 1880                     | 1900                   |                     |          |                     |          |
| 20              | QPSK       | 1       | 0         | 23.04                 | 22.97                    | 22.84                  | 24                  | 0        |                     |          |
| 20              | QPSK       | 1       | 49        | 22.72                 | 22.91                    | 22.71                  |                     |          |                     |          |
| 20              | QPSK       | 1       | 99        | 22.93                 | 22.81                    | 22.69                  |                     |          |                     |          |
| 20              | QPSK       | 50      | 0         | 22.05                 | 22.04                    | 22.03                  | 23                  | 1        |                     |          |
| 20              | QPSK       | 50      | 24        | 22.02                 | 22.02                    | 21.97                  |                     |          |                     |          |
| 20              | QPSK       | 50      | 50        | 22.01                 | 21.95                    | 21.94                  |                     |          |                     |          |
| 20              | QPSK       | 100     | 0         | 22.00                 | 21.94                    | 21.99                  | 23                  | 1        |                     |          |
| 20              | 16QAM      | 1       | 0         | 22.66                 | 22.37                    | 22.26                  |                     |          |                     |          |
| 20              | 16QAM      | 1       | 49        | 22.44                 | 21.84                    | 22.06                  |                     |          |                     |          |
| 20              | 16QAM      | 1       | 99        | 22.18                 | 21.99                    | 22.13                  | 22                  | 2        |                     |          |
| 20              | 16QAM      | 50      | 0         | 20.99                 | 21.03                    | 21.04                  |                     |          |                     |          |
| 20              | 16QAM      | 50      | 24        | 20.95                 | 21.04                    | 21.07                  |                     |          |                     |          |
| 20              | 16QAM      | 50      | 50        | 21.03                 | 21.01                    | 20.97                  | 22                  | 2        |                     |          |
| 20              | 16QAM      | 100     | 0         | 21.06                 | 20.96                    | 20.91                  |                     |          |                     |          |
| 20              | 64QAM      | 1       | 0         | 21.15                 | 21.15                    | 21.09                  |                     |          |                     |          |
| 20              | 64QAM      | 1       | 49        | 21.20                 | 21.17                    | 20.54                  | 22                  | 2        |                     |          |
| 20              | 64QAM      | 1       | 99        | 21.09                 | 20.99                    | 20.99                  |                     |          |                     |          |
| 20              | 64QAM      | 50      | 0         | 19.99                 | 19.94                    | 19.93                  |                     |          |                     |          |
| 20              | 64QAM      | 50      | 24        | 20.07                 | 19.93                    | 19.90                  | 21                  | 3        |                     |          |
| 20              | 64QAM      | 50      | 50        | 19.93                 | 20.07                    | 20.08                  |                     |          |                     |          |
| 20              | 64QAM      | 100     | 0         | 20.00                 | 19.99                    | 20.00                  |                     |          |                     |          |
| 20              | 256QAM     | 1       | 0         | 19.68                 | 19.68                    | 19.64                  | 20                  | 4        |                     |          |
| 20              | 256QAM     | 1       | 49        | 19.79                 | 19.71                    | 19.07                  |                     |          |                     |          |
| 20              | 256QAM     | 1       | 99        | 19.59                 | 19.49                    | 19.59                  |                     |          |                     |          |
| 20              | 256QAM     | 50      | 0         | 18.59                 | 18.44                    | 18.47                  | 20                  | 4        |                     |          |
| 20              | 256QAM     | 50      | 24        | 18.65                 | 18.48                    | 18.44                  |                     |          |                     |          |
| 20              | 256QAM     | 50      | 50        | 18.50                 | 18.58                    | 18.60                  |                     |          |                     |          |
| 20              | 256QAM     | 100     | 0         | 18.60                 | 18.50                    | 18.57                  | 20                  | 4        |                     |          |
| Channel         |            |         |           | 18675                 | 18900                    | 19125                  |                     |          | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1857.5                | 1880                     | 1902.5                 |                     |          |                     |          |
| 15              | QPSK       | 1       | 0         | 23.03                 | 22.74                    | 22.81                  | 24                  | 0        |                     |          |
| 15              | QPSK       | 1       | 37        | 22.66                 | 22.91                    | 22.64                  |                     |          |                     |          |
| 15              | QPSK       | 1       | 74        | 22.89                 | 22.81                    | 22.63                  |                     |          |                     |          |
| 15              | QPSK       | 36      | 0         | 21.90                 | 21.85                    | 21.84                  | 23                  | 1        |                     |          |
| 15              | QPSK       | 36      | 20        | 21.99                 | 21.98                    | 21.90                  |                     |          |                     |          |
| 15              | QPSK       | 36      | 39        | 21.89                 | 21.91                    | 21.97                  |                     |          |                     |          |
| 15              | QPSK       | 75      | 0         | 21.93                 | 21.92                    | 21.91                  | 23                  | 1        |                     |          |
| 15              | 16QAM      | 1       | 0         | 22.66                 | 22.29                    | 22.18                  |                     |          |                     |          |
| 15              | 16QAM      | 1       | 37        | 22.37                 | 21.75                    | 22.01                  |                     |          |                     |          |
| 15              | 16QAM      | 1       | 74        | 22.16                 | 21.92                    | 22.05                  | 22                  | 2        |                     |          |
| 15              | 16QAM      | 36      | 0         | 20.96                 | 20.97                    | 21.00                  |                     |          |                     |          |
| 15              | 16QAM      | 36      | 20        | 20.95                 | 21.02                    | 21.07                  |                     |          |                     |          |
| 15              | 16QAM      | 36      | 39        | 20.97                 | 20.97                    | 20.90                  | 22                  | 2        |                     |          |
| 15              | 16QAM      | 75      | 0         | 21.02                 | 20.96                    | 20.88                  |                     |          |                     |          |
| 15              | 64QAM      | 1       | 0         | 21.15                 | 21.11                    | 21.03                  |                     |          |                     |          |
| 15              | 64QAM      | 1       | 37        | 21.12                 | 21.07                    | 20.45                  | 22                  | 2        |                     |          |
| 15              | 64QAM      | 1       | 74        | 21.03                 | 20.89                    | 20.91                  |                     |          |                     |          |
| 15              | 64QAM      | 36      | 0         | 19.93                 | 19.86                    | 19.83                  |                     |          |                     |          |
| 15              | 64QAM      | 36      | 20        | 20.06                 | 19.90                    | 19.80                  | 21                  | 3        |                     |          |
| 15              | 64QAM      | 36      | 39        | 19.88                 | 19.98                    | 20.03                  |                     |          |                     |          |
| 15              | 64QAM      | 75      | 0         | 19.95                 | 19.95                    | 19.99                  |                     |          |                     |          |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |    |    |        |       |        |                     |          |
|-----------------|--------|----|----|--------|-------|--------|---------------------|----------|
| 15              | 256QAM | 1  | 0  | 19.73  | 19.69 | 19.53  | 20                  | 4        |
| 15              | 256QAM | 1  | 37 | 19.71  | 19.57 | 18.96  |                     |          |
| 15              | 256QAM | 1  | 74 | 19.60  | 19.42 | 19.43  |                     |          |
| 15              | 256QAM | 36 | 0  | 18.50  | 18.36 | 18.41  | 20                  | 4        |
| 15              | 256QAM | 36 | 20 | 18.58  | 18.45 | 18.37  |                     |          |
| 15              | 256QAM | 36 | 39 | 18.47  | 18.56 | 18.53  |                     |          |
| 15              | 256QAM | 75 | 0  | 18.48  | 18.54 | 18.49  |                     |          |
| Channel         |        |    |    | 18650  | 18900 | 19150  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 1855   | 1880  | 1905   |                     |          |
| 10              | QPSK   | 1  | 0  | 23.00  | 22.74 | 22.74  | 24                  | 0        |
| 10              | QPSK   | 1  | 25 | 22.63  | 22.90 | 22.55  |                     |          |
| 10              | QPSK   | 1  | 49 | 22.87  | 22.77 | 22.53  |                     |          |
| 10              | QPSK   | 25 | 0  | 21.87  | 21.81 | 21.79  | 23                  | 1        |
| 10              | QPSK   | 25 | 12 | 21.97  | 21.90 | 21.89  |                     |          |
| 10              | QPSK   | 25 | 25 | 21.87  | 21.86 | 21.93  |                     |          |
| 10              | QPSK   | 50 | 0  | 21.86  | 21.92 | 21.90  |                     |          |
| 10              | 16QAM  | 1  | 0  | 22.59  | 22.28 | 22.09  | 23                  | 1        |
| 10              | 16QAM  | 1  | 25 | 22.30  | 21.73 | 22.00  |                     |          |
| 10              | 16QAM  | 1  | 49 | 22.14  | 21.88 | 21.98  |                     |          |
| 10              | 16QAM  | 25 | 0  | 20.89  | 20.89 | 20.98  | 22                  | 2        |
| 10              | 16QAM  | 25 | 12 | 20.86  | 20.93 | 20.99  |                     |          |
| 10              | 16QAM  | 25 | 25 | 20.92  | 20.96 | 20.81  |                     |          |
| 10              | 16QAM  | 50 | 0  | 20.99  | 20.96 | 20.85  |                     |          |
| 10              | 64QAM  | 1  | 0  | 21.06  | 21.05 | 21.03  | 22                  | 2        |
| 10              | 64QAM  | 1  | 25 | 21.02  | 20.99 | 20.45  |                     |          |
| 10              | 64QAM  | 1  | 49 | 20.93  | 20.80 | 20.82  |                     |          |
| 10              | 64QAM  | 25 | 0  | 19.91  | 19.76 | 19.83  | 21                  | 3        |
| 10              | 64QAM  | 25 | 12 | 20.00  | 19.82 | 19.78  |                     |          |
| 10              | 64QAM  | 25 | 25 | 19.80  | 19.98 | 19.99  |                     |          |
| 10              | 64QAM  | 50 | 0  | 19.94  | 19.87 | 19.97  |                     |          |
| 10              | 256QAM | 1  | 0  | 19.62  | 19.60 | 19.53  | 20                  | 4        |
| 10              | 256QAM | 1  | 25 | 19.62  | 19.50 | 19.03  |                     |          |
| 10              | 256QAM | 1  | 49 | 19.47  | 19.34 | 19.35  |                     |          |
| 10              | 256QAM | 25 | 0  | 18.45  | 18.31 | 18.37  | 20                  | 4        |
| 10              | 256QAM | 25 | 12 | 18.52  | 18.33 | 18.35  |                     |          |
| 10              | 256QAM | 25 | 25 | 18.40  | 18.54 | 18.49  |                     |          |
| 10              | 256QAM | 50 | 0  | 18.50  | 18.43 | 18.52  |                     |          |
| Channel         |        |    |    | 18625  | 18900 | 19175  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 1852.5 | 1880  | 1907.5 |                     |          |
| 5               | QPSK   | 1  | 0  | 22.99  | 22.74 | 22.65  | 24                  | 0        |
| 5               | QPSK   | 1  | 12 | 22.53  | 22.85 | 22.52  |                     |          |
| 5               | QPSK   | 1  | 24 | 22.86  | 22.70 | 22.51  |                     |          |
| 5               | QPSK   | 12 | 0  | 21.78  | 21.80 | 21.70  | 23                  | 1        |
| 5               | QPSK   | 12 | 7  | 21.88  | 21.83 | 21.84  |                     |          |
| 5               | QPSK   | 12 | 13 | 21.81  | 21.86 | 21.89  |                     |          |
| 5               | QPSK   | 25 | 0  | 21.85  | 21.92 | 21.86  |                     |          |
| 5               | 16QAM  | 1  | 0  | 22.59  | 22.21 | 22.00  | 23                  | 1        |
| 5               | 16QAM  | 1  | 12 | 22.25  | 21.64 | 21.99  |                     |          |
| 5               | 16QAM  | 1  | 24 | 22.13  | 21.86 | 21.88  |                     |          |
| 5               | 16QAM  | 12 | 0  | 20.84  | 20.84 | 20.92  | 22                  | 2        |
| 5               | 16QAM  | 12 | 7  | 20.78  | 20.92 | 20.89  |                     |          |
| 5               | 16QAM  | 12 | 13 | 20.88  | 20.95 | 20.80  |                     |          |
| 5               | 16QAM  | 25 | 0  | 20.89  | 20.87 | 20.83  |                     |          |
| 5               | 64QAM  | 1  | 0  | 20.99  | 21.00 | 21.00  | 22                  | 2        |
| 5               | 64QAM  | 1  | 12 | 21.02  | 20.96 | 20.45  |                     |          |
| 5               | 64QAM  | 1  | 24 | 20.92  | 20.77 | 20.74  |                     |          |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |    |    |        |       |        |                     |          |
|-----------------|--------|----|----|--------|-------|--------|---------------------|----------|
| 5               | 64QAM  | 12 | 0  | 19.85  | 19.68 | 19.75  | 21                  | 3        |
| 5               | 64QAM  | 12 | 7  | 20.00  | 19.76 | 19.75  |                     |          |
| 5               | 64QAM  | 12 | 13 | 19.79  | 19.90 | 19.98  |                     |          |
| 5               | 64QAM  | 25 | 0  | 19.89  | 19.87 | 19.92  | 20                  | 4        |
| 5               | 256QAM | 1  | 0  | 19.52  | 19.51 | 19.59  |                     |          |
| 5               | 256QAM | 1  | 12 | 19.60  | 19.53 | 18.99  |                     |          |
| 5               | 256QAM | 1  | 24 | 19.47  | 19.29 | 19.27  | 20                  | 4        |
| 5               | 256QAM | 12 | 0  | 18.42  | 18.26 | 18.27  |                     |          |
| 5               | 256QAM | 12 | 7  | 18.51  | 18.27 | 18.34  |                     |          |
| 5               | 256QAM | 12 | 13 | 18.31  | 18.40 | 18.49  |                     |          |
| 5               | 256QAM | 25 | 0  | 18.39  | 18.38 | 18.43  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 18615  | 18900 | 19185  |                     |          |
| Frequency (MHz) |        |    |    | 1851.5 | 1880  | 1908.5 |                     |          |
| 3               | QPSK   | 1  | 0  | 22.84  | 22.70 | 22.65  | 24                  | 0        |
| 3               | QPSK   | 1  | 8  | 22.54  | 22.78 | 22.47  |                     |          |
| 3               | QPSK   | 1  | 14 | 22.81  | 22.63 | 22.47  |                     |          |
| 3               | QPSK   | 8  | 0  | 21.80  | 21.68 | 21.74  | 23                  | 1        |
| 3               | QPSK   | 8  | 4  | 21.86  | 21.76 | 21.78  |                     |          |
| 3               | QPSK   | 8  | 7  | 21.74  | 21.66 | 21.85  |                     |          |
| 3               | QPSK   | 15 | 0  | 21.78  | 21.81 | 21.72  |                     |          |
| 3               | 16QAM  | 1  | 0  | 22.48  | 22.25 | 22.03  | 23                  | 1        |
| 3               | 16QAM  | 1  | 8  | 22.12  | 21.57 | 21.87  |                     |          |
| 3               | 16QAM  | 1  | 14 | 21.97  | 21.80 | 21.93  |                     |          |
| 3               | 16QAM  | 8  | 0  | 20.81  | 20.79 | 20.90  | 22                  | 2        |
| 3               | 16QAM  | 8  | 4  | 20.71  | 20.87 | 20.82  |                     |          |
| 3               | 16QAM  | 8  | 7  | 20.78  | 20.82 | 20.70  |                     |          |
| 3               | 16QAM  | 15 | 0  | 20.98  | 20.86 | 20.75  |                     |          |
| 3               | 64QAM  | 1  | 0  | 20.96  | 20.95 | 20.89  | 22                  | 2        |
| 3               | 64QAM  | 1  | 8  | 20.92  | 20.90 | 20.36  |                     |          |
| 3               | 64QAM  | 1  | 14 | 20.91  | 20.68 | 20.76  |                     |          |
| 3               | 64QAM  | 8  | 0  | 19.73  | 19.60 | 19.72  | 21                  | 3        |
| 3               | 64QAM  | 8  | 4  | 19.97  | 19.78 | 19.66  |                     |          |
| 3               | 64QAM  | 8  | 7  | 19.70  | 19.94 | 19.92  |                     |          |
| 3               | 64QAM  | 15 | 0  | 19.84  | 19.82 | 19.83  |                     |          |
| 3               | 256QAM | 1  | 0  | 19.56  | 19.49 | 19.49  | 20                  | 4        |
| 3               | 256QAM | 1  | 8  | 19.51  | 19.45 | 18.91  |                     |          |
| 3               | 256QAM | 1  | 14 | 19.42  | 19.23 | 19.34  |                     |          |
| 3               | 256QAM | 8  | 0  | 18.30  | 18.11 | 18.29  | 20                  | 4        |
| 3               | 256QAM | 8  | 4  | 18.49  | 18.36 | 18.17  |                     |          |
| 3               | 256QAM | 8  | 7  | 18.26  | 18.45 | 18.52  |                     |          |
| 3               | 256QAM | 15 | 0  | 18.43  | 18.34 | 18.41  |                     |          |
| Channel         |        |    |    | 18607  | 18900 | 19193  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 1850.7 | 1880  | 1909.3 |                     |          |
| 1.4             | QPSK   | 1  | 0  | 22.79  | 22.65 | 22.64  | 24                  | 0        |
| 1.4             | QPSK   | 1  | 3  | 22.53  | 22.78 | 22.39  |                     |          |
| 1.4             | QPSK   | 1  | 5  | 22.78  | 22.63 | 22.46  |                     |          |
| 1.4             | QPSK   | 3  | 0  | 22.78  | 22.65 | 22.63  |                     |          |
| 1.4             | QPSK   | 3  | 1  | 22.46  | 22.76 | 22.38  |                     |          |
| 1.4             | QPSK   | 3  | 3  | 22.76  | 22.63 | 22.46  | 23                  | 1        |
| 1.4             | QPSK   | 6  | 0  | 21.75  | 21.81 | 21.64  |                     |          |
| 1.4             | 16QAM  | 1  | 0  | 22.48  | 22.25 | 22.01  | 23                  | 1        |
| 1.4             | 16QAM  | 1  | 3  | 22.04  | 21.55 | 21.86  |                     |          |
| 1.4             | 16QAM  | 1  | 5  | 21.96  | 21.79 | 21.91  |                     |          |
| 1.4             | 16QAM  | 3  | 0  | 22.47  | 22.22 | 21.96  |                     |          |
| 1.4             | 16QAM  | 3  | 1  | 21.96  | 21.50 | 21.79  |                     |          |
| 1.4             | 16QAM  | 3  | 3  | 21.86  | 21.72 | 21.81  |                     |          |



|     |        |   |   |       |       |       |    |   |
|-----|--------|---|---|-------|-------|-------|----|---|
| 1.4 | 16QAM  | 6 | 0 | 20.90 | 20.77 | 20.68 | 22 | 2 |
| 1.4 | 64QAM  | 1 | 0 | 20.92 | 20.86 | 20.77 | 22 | 2 |
| 1.4 | 64QAM  | 1 | 3 | 20.80 | 20.85 | 20.27 |    |   |
| 1.4 | 64QAM  | 1 | 5 | 20.75 | 20.65 | 20.62 |    |   |
| 1.4 | 64QAM  | 3 | 0 | 20.92 | 20.86 | 20.77 |    |   |
| 1.4 | 64QAM  | 3 | 1 | 20.80 | 20.85 | 20.27 |    |   |
| 1.4 | 64QAM  | 3 | 3 | 20.75 | 20.65 | 20.62 |    |   |
| 1.4 | 64QAM  | 6 | 0 | 19.74 | 19.78 | 19.74 | 21 | 3 |
| 1.4 | 256QAM | 1 | 0 | 19.44 | 19.38 | 19.35 | 20 | 4 |
| 1.4 | 256QAM | 1 | 3 | 19.37 | 19.35 | 18.84 |    |   |
| 1.4 | 256QAM | 1 | 5 | 19.28 | 19.17 | 19.18 |    |   |
| 1.4 | 256QAM | 3 | 0 | 19.42 | 19.41 | 19.37 |    |   |
| 1.4 | 256QAM | 3 | 1 | 19.38 | 19.37 | 18.87 |    |   |
| 1.4 | 256QAM | 3 | 3 | 19.31 | 19.20 | 19.13 |    |   |
| 1.4 | 256QAM | 6 | 0 | 18.30 | 18.33 | 18.31 | 20 | 4 |

<LTE Band 2 Aux 2>

| 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         |            |         |           | 18700                 | 18900                    | 19100                  | Tune-up limit (dBm) | MPR (dB) |                     |          |
| Frequency (MHz) |            |         |           | 1860                  | 1880                     | 1900                   |                     |          |                     |          |
| 20              | QPSK       | 1       | 0         | 22.76                 | 22.87                    | 22.88                  | 24                  | 0        |                     |          |
| 20              | QPSK       | 1       | 49        | 22.68                 | 22.86                    | 22.79                  |                     |          |                     |          |
| 20              | QPSK       | 1       | 99        | 22.70                 | 22.83                    | 22.80                  |                     |          |                     |          |
| 20              | QPSK       | 50      | 0         | 21.95                 | 22.03                    | 22.06                  | 23                  | 1        |                     |          |
| 20              | QPSK       | 50      | 24        | 21.92                 | 22.02                    | 22.00                  |                     |          |                     |          |
| 20              | QPSK       | 50      | 50        | 21.95                 | 21.97                    | 21.96                  |                     |          |                     |          |
| 20              | QPSK       | 100     | 0         | 21.70                 | 21.73                    | 21.69                  | 23                  | 1        |                     |          |
| 20              | 16QAM      | 1       | 0         | 21.99                 | 22.07                    | 22.03                  |                     |          |                     |          |
| 20              | 16QAM      | 1       | 49        | 22.15                 | 22.16                    | 22.16                  |                     |          |                     |          |
| 20              | 16QAM      | 1       | 99        | 22.13                 | 22.16                    | 22.07                  | 22                  | 2        |                     |          |
| 20              | 16QAM      | 50      | 0         | 20.88                 | 20.97                    | 20.93                  |                     |          |                     |          |
| 20              | 16QAM      | 50      | 24        | 20.97                 | 20.98                    | 20.96                  |                     |          |                     |          |
| 20              | 16QAM      | 50      | 50        | 21.16                 | 21.18                    | 21.10                  | 22                  | 2        |                     |          |
| 20              | 16QAM      | 100     | 0         | 21.04                 | 21.05                    | 21.00                  |                     |          |                     |          |
| 20              | 64QAM      | 1       | 0         | 20.05                 | 20.05                    | 20.04                  |                     |          |                     |          |
| 20              | 64QAM      | 1       | 49        | 20.99                 | 21.02                    | 20.94                  | 22                  | 2        |                     |          |
| 20              | 64QAM      | 1       | 99        | 20.81                 | 20.85                    | 20.81                  |                     |          |                     |          |
| 20              | 64QAM      | 50      | 0         | 20.04                 | 20.05                    | 20.01                  |                     |          |                     |          |
| 20              | 64QAM      | 50      | 24        | 20.05                 | 20.13                    | 20.12                  | 21                  | 3        |                     |          |
| 20              | 64QAM      | 50      | 50        | 20.13                 | 20.23                    | 20.13                  |                     |          |                     |          |
| 20              | 64QAM      | 100     | 0         | 20.35                 | 20.38                    | 20.35                  |                     |          |                     |          |
| 20              | 256QAM     | 1       | 0         | 18.57                 | 18.56                    | 18.62                  | 20                  | 4        |                     |          |
| 20              | 256QAM     | 1       | 49        | 19.46                 | 19.45                    | 19.48                  |                     |          |                     |          |
| 20              | 256QAM     | 1       | 99        | 19.38                 | 19.43                    | 19.35                  |                     |          |                     |          |
| 20              | 256QAM     | 50      | 0         | 18.57                 | 18.61                    | 18.53                  | 20                  | 4        |                     |          |
| 20              | 256QAM     | 50      | 24        | 18.59                 | 18.68                    | 18.72                  |                     |          |                     |          |
| 20              | 256QAM     | 50      | 50        | 18.70                 | 18.83                    | 18.69                  |                     |          |                     |          |
| 20              | 256QAM     | 100     | 0         | 18.89                 | 18.90                    | 18.87                  | 20                  | 4        |                     |          |
| Channel         |            |         |           | 18675                 | 18900                    | 19125                  |                     |          | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1857.5                | 1880                     | 1902.5                 |                     |          |                     |          |
| 15              | QPSK       | 1       | 0         | 22.66                 | 22.84                    | 22.80                  | 24                  | 0        |                     |          |
| 15              | QPSK       | 1       | 37        | 22.73                 | 22.85                    | 22.72                  |                     |          |                     |          |
| 15              | QPSK       | 1       | 74        | 22.75                 | 22.75                    | 22.73                  |                     |          |                     |          |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |    |    |       |       |       |                     |          |
|-----------------|--------|----|----|-------|-------|-------|---------------------|----------|
| 15              | QPSK   | 36 | 0  | 21.94 | 22.01 | 21.86 | 23                  | 1        |
| 15              | QPSK   | 36 | 20 | 21.92 | 21.94 | 21.90 |                     |          |
| 15              | QPSK   | 36 | 39 | 22.06 | 22.14 | 22.15 |                     |          |
| 15              | QPSK   | 75 | 0  | 22.65 | 22.65 | 22.64 | 23                  | 1        |
| 15              | 16QAM  | 1  | 0  | 21.95 | 22.07 | 21.99 |                     |          |
| 15              | 16QAM  | 1  | 37 | 22.07 | 22.15 | 22.07 |                     |          |
| 15              | 16QAM  | 1  | 74 | 22.04 | 22.10 | 21.98 | 22                  | 2        |
| 15              | 16QAM  | 36 | 0  | 20.81 | 20.95 | 20.86 |                     |          |
| 15              | 16QAM  | 36 | 20 | 20.90 | 20.97 | 20.96 |                     |          |
| 15              | 16QAM  | 36 | 39 | 21.09 | 21.08 | 21.05 | 22                  | 2        |
| 15              | 16QAM  | 75 | 0  | 21.00 | 21.04 | 20.94 |                     |          |
| 15              | 64QAM  | 1  | 0  | 20.11 | 20.12 | 20.17 |                     |          |
| 15              | 64QAM  | 1  | 37 | 20.92 | 21.02 | 20.93 | 21                  | 3        |
| 15              | 64QAM  | 1  | 74 | 20.71 | 20.79 | 20.74 |                     |          |
| 15              | 64QAM  | 36 | 0  | 20.01 | 20.04 | 19.94 |                     |          |
| 15              | 64QAM  | 36 | 20 | 20.04 | 20.08 | 20.10 | 20                  | 4        |
| 15              | 64QAM  | 36 | 39 | 20.04 | 20.22 | 20.06 |                     |          |
| 15              | 64QAM  | 75 | 0  | 20.28 | 20.32 | 20.31 |                     |          |
| 15              | 256QAM | 1  | 0  | 18.71 | 18.62 | 18.70 | 20                  | 4        |
| 15              | 256QAM | 1  | 37 | 19.51 | 19.52 | 19.51 |                     |          |
| 15              | 256QAM | 1  | 74 | 19.27 | 19.37 | 19.34 |                     |          |
| 15              | 256QAM | 36 | 0  | 18.52 | 18.54 | 18.52 | 20                  | 4        |
| 15              | 256QAM | 36 | 20 | 18.63 | 18.64 | 18.67 |                     |          |
| 15              | 256QAM | 36 | 39 | 18.58 | 18.82 | 18.65 |                     |          |
| 15              | 256QAM | 75 | 0  | 18.82 | 18.92 | 18.91 | Tune-up limit (dBm) | MPR (dB) |
| Channel         |        |    |    | 18650 | 18900 | 19150 |                     |          |
| Frequency (MHz) |        |    |    | 1855  | 1880  | 1905  |                     |          |
| 10              | QPSK   | 1  | 0  | 22.62 | 22.79 | 22.75 | 24                  | 0        |
| 10              | QPSK   | 1  | 25 | 22.72 | 22.83 | 22.67 |                     |          |
| 10              | QPSK   | 1  | 49 | 22.65 | 22.74 | 22.73 |                     |          |
| 10              | QPSK   | 25 | 0  | 21.90 | 21.99 | 21.76 | 23                  | 1        |
| 10              | QPSK   | 25 | 12 | 21.89 | 21.87 | 21.89 |                     |          |
| 10              | QPSK   | 25 | 25 | 21.98 | 22.07 | 22.07 |                     |          |
| 10              | QPSK   | 50 | 0  | 22.64 | 22.58 | 22.63 | 23                  | 1        |
| 10              | 16QAM  | 1  | 0  | 21.93 | 22.00 | 21.98 |                     |          |
| 10              | 16QAM  | 1  | 25 | 21.99 | 22.05 | 21.97 |                     |          |
| 10              | 16QAM  | 1  | 49 | 21.97 | 22.00 | 21.94 | 22                  | 2        |
| 10              | 16QAM  | 25 | 0  | 20.81 | 20.85 | 20.86 |                     |          |
| 10              | 16QAM  | 25 | 12 | 20.86 | 20.92 | 20.95 |                     |          |
| 10              | 16QAM  | 25 | 25 | 21.04 | 21.06 | 20.95 | 22                  | 2        |
| 10              | 16QAM  | 50 | 0  | 20.96 | 21.02 | 20.86 |                     |          |
| 10              | 64QAM  | 1  | 0  | 20.01 | 20.12 | 20.12 |                     |          |
| 10              | 64QAM  | 1  | 25 | 20.87 | 21.01 | 20.86 | 22                  | 2        |
| 10              | 64QAM  | 1  | 49 | 20.62 | 20.72 | 20.72 |                     |          |
| 10              | 64QAM  | 25 | 0  | 19.92 | 20.00 | 19.90 |                     |          |
| 10              | 64QAM  | 25 | 12 | 19.97 | 20.05 | 20.00 | 21                  | 3        |
| 10              | 64QAM  | 25 | 25 | 20.00 | 20.17 | 20.01 |                     |          |
| 10              | 64QAM  | 50 | 0  | 20.23 | 20.31 | 20.21 |                     |          |
| 10              | 256QAM | 1  | 0  | 18.58 | 18.67 | 18.70 | 20                  | 4        |
| 10              | 256QAM | 1  | 25 | 19.43 | 19.53 | 19.44 |                     |          |
| 10              | 256QAM | 1  | 49 | 19.13 | 19.29 | 19.28 |                     |          |
| 10              | 256QAM | 25 | 0  | 18.48 | 18.56 | 18.43 | 20                  | 4        |
| 10              | 256QAM | 25 | 12 | 18.49 | 18.65 | 18.52 |                     |          |
| 10              | 256QAM | 25 | 25 | 18.50 | 18.75 | 18.53 |                     |          |
| 10              | 256QAM | 50 | 0  | 18.78 | 18.90 | 18.80 | Tune-up limit       | MPR      |
| Channel         |        |    |    | 18625 | 18900 | 19175 |                     |          |



| Frequency (MHz) |        |    |    | 1852.5 | 1880  | 1907.5 | (dBm) | (dB) |                     |          |
|-----------------|--------|----|----|--------|-------|--------|-------|------|---------------------|----------|
| 5               | QPSK   | 1  | 0  | 22.58  | 22.79 | 22.71  | 24    | 0    |                     |          |
| 5               | QPSK   | 1  | 12 | 22.63  | 22.79 | 22.62  |       |      |                     |          |
| 5               | QPSK   | 1  | 24 | 22.64  | 22.73 | 22.73  |       |      |                     |          |
| 5               | QPSK   | 12 | 0  | 21.84  | 21.92 | 21.72  | 23    | 1    |                     |          |
| 5               | QPSK   | 12 | 7  | 21.81  | 21.80 | 21.81  |       |      |                     |          |
| 5               | QPSK   | 12 | 13 | 21.97  | 22.03 | 21.97  |       |      |                     |          |
| 5               | QPSK   | 25 | 0  | 22.64  | 22.57 | 22.63  | 23    | 1    |                     |          |
| 5               | 16QAM  | 1  | 0  | 21.92  | 21.98 | 21.89  |       |      |                     |          |
| 5               | 16QAM  | 1  | 12 | 21.99  | 22.05 | 21.94  |       |      |                     |          |
| 5               | 16QAM  | 1  | 24 | 21.93  | 21.91 | 21.85  | 22    | 2    |                     |          |
| 5               | 16QAM  | 12 | 0  | 20.75  | 20.76 | 20.78  |       |      |                     |          |
| 5               | 16QAM  | 12 | 7  | 20.83  | 20.92 | 20.87  |       |      |                     |          |
| 5               | 16QAM  | 12 | 13 | 21.02  | 21.02 | 20.92  | 22    | 2    |                     |          |
| 5               | 16QAM  | 25 | 0  | 20.87  | 20.98 | 20.83  |       |      |                     |          |
| 5               | 64QAM  | 1  | 0  | 20.13  | 20.02 | 20.02  |       |      |                     |          |
| 5               | 64QAM  | 1  | 12 | 20.79  | 20.92 | 20.83  | 22    | 2    |                     |          |
| 5               | 64QAM  | 1  | 24 | 20.54  | 20.69 | 20.65  |       |      |                     |          |
| 5               | 64QAM  | 12 | 0  | 19.88  | 19.90 | 19.86  |       |      |                     |          |
| 5               | 64QAM  | 12 | 7  | 19.91  | 20.00 | 19.91  | 21    | 3    |                     |          |
| 5               | 64QAM  | 12 | 13 | 19.92  | 20.08 | 19.99  |       |      |                     |          |
| 5               | 64QAM  | 25 | 0  | 20.18  | 20.26 | 20.11  |       |      |                     |          |
| 5               | 256QAM | 1  | 0  | 18.68  | 18.60 | 18.57  | 20    | 4    |                     |          |
| 5               | 256QAM | 1  | 12 | 19.39  | 19.45 | 19.40  |       |      |                     |          |
| 5               | 256QAM | 1  | 24 | 19.05  | 19.26 | 19.21  |       |      |                     |          |
| 5               | 256QAM | 12 | 0  | 18.44  | 18.43 | 18.46  | 20    | 4    |                     |          |
| 5               | 256QAM | 12 | 7  | 18.49  | 18.50 | 18.47  |       |      |                     |          |
| 5               | 256QAM | 12 | 13 | 18.44  | 18.60 | 18.59  |       |      |                     |          |
| 5               | 256QAM | 25 | 0  | 18.77  | 18.85 | 18.69  | 20    | 4    |                     |          |
| Channel         |        |    |    | 18615  | 18900 | 19185  |       |      | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 1851.5 | 1880  | 1908.5 |       |      |                     |          |
| 3               | QPSK   | 1  | 0  | 22.53  | 22.74 | 22.68  | 24    | 0    |                     |          |
| 3               | QPSK   | 1  | 8  | 22.59  | 22.71 | 22.55  |       |      |                     |          |
| 3               | QPSK   | 1  | 14 | 22.54  | 22.68 | 22.71  |       |      |                     |          |
| 3               | QPSK   | 8  | 0  | 21.74  | 21.86 | 21.72  | 23    | 1    |                     |          |
| 3               | QPSK   | 8  | 4  | 21.79  | 21.75 | 21.78  |       |      |                     |          |
| 3               | QPSK   | 8  | 7  | 21.96  | 21.93 | 21.91  |       |      |                     |          |
| 3               | QPSK   | 15 | 0  | 22.54  | 22.53 | 22.60  | 23    | 1    |                     |          |
| 3               | 16QAM  | 1  | 0  | 21.88  | 21.89 | 21.88  |       |      |                     |          |
| 3               | 16QAM  | 1  | 8  | 21.93  | 22.04 | 21.88  |       |      |                     |          |
| 3               | 16QAM  | 1  | 14 | 21.93  | 21.90 | 21.77  | 22    | 2    |                     |          |
| 3               | 16QAM  | 8  | 0  | 20.67  | 20.76 | 20.68  |       |      |                     |          |
| 3               | 16QAM  | 8  | 4  | 20.74  | 20.86 | 20.85  |       |      |                     |          |
| 3               | 16QAM  | 8  | 7  | 21.02  | 20.96 | 20.90  | 22    | 2    |                     |          |
| 3               | 16QAM  | 15 | 0  | 20.77  | 20.95 | 20.77  |       |      |                     |          |
| 3               | 64QAM  | 1  | 0  | 20.04  | 20.12 | 20.17  |       |      |                     |          |
| 3               | 64QAM  | 1  | 8  | 20.78  | 20.88 | 20.83  | 22    | 2    |                     |          |
| 3               | 64QAM  | 1  | 14 | 20.46  | 20.66 | 20.57  |       |      |                     |          |
| 3               | 64QAM  | 8  | 0  | 19.80  | 19.88 | 19.85  |       |      |                     |          |
| 3               | 64QAM  | 8  | 4  | 19.82  | 19.97 | 19.82  | 21    | 3    |                     |          |
| 3               | 64QAM  | 8  | 7  | 19.90  | 20.07 | 19.93  |       |      |                     |          |
| 3               | 64QAM  | 15 | 0  | 20.10  | 20.17 | 20.02  |       |      |                     |          |
| 3               | 256QAM | 1  | 0  | 18.58  | 18.68 | 18.70  | 20    | 4    |                     |          |
| 3               | 256QAM | 1  | 8  | 19.36  | 19.38 | 19.42  |       |      |                     |          |
| 3               | 256QAM | 1  | 14 | 19.04  | 19.20 | 19.12  |       |      |                     |          |
| 3               | 256QAM | 8  | 0  | 18.32  | 18.44 | 18.40  | 20    | 4    |                     |          |





| 3               | 256QAM | 8  | 4 | 18.35  | 18.55 | 18.40  |                     |          |
|-----------------|--------|----|---|--------|-------|--------|---------------------|----------|
| 3               | 256QAM | 8  | 7 | 18.45  | 18.57 | 18.51  |                     |          |
| 3               | 256QAM | 15 | 0 | 18.67  | 18.71 | 18.55  |                     |          |
| Channel         |        |    |   | 18607  | 18900 | 19193  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |   | 1850.7 | 1880  | 1909.3 |                     |          |
| 1.4             | QPSK   | 1  | 0 | 22.51  | 22.70 | 22.68  | 24                  | 0        |
| 1.4             | QPSK   | 1  | 3 | 22.52  | 22.66 | 22.55  |                     |          |
| 1.4             | QPSK   | 1  | 5 | 22.44  | 22.61 | 22.65  |                     |          |
| 1.4             | QPSK   | 3  | 0 | 22.49  | 22.70 | 22.63  |                     |          |
| 1.4             | QPSK   | 3  | 1 | 22.53  | 22.63 | 22.49  |                     |          |
| 1.4             | QPSK   | 3  | 3 | 22.48  | 22.62 | 22.64  |                     |          |
| 1.4             | QPSK   | 6  | 0 | 22.51  | 22.49 | 22.50  | 23                  | 1        |
| 1.4             | 16QAM  | 1  | 0 | 21.87  | 21.89 | 21.83  | 23                  | 1        |
| 1.4             | 16QAM  | 1  | 3 | 21.88  | 21.98 | 21.88  |                     |          |
| 1.4             | 16QAM  | 1  | 5 | 21.87  | 21.84 | 21.73  |                     |          |
| 1.4             | 16QAM  | 3  | 0 | 22.45  | 22.52 | 22.60  |                     |          |
| 1.4             | 16QAM  | 3  | 1 | 21.85  | 21.82 | 21.85  |                     |          |
| 1.4             | 16QAM  | 3  | 3 | 21.92  | 22.03 | 21.88  |                     |          |
| 1.4             | 16QAM  | 6  | 0 | 20.75  | 20.89 | 20.71  | 22                  | 2        |
| 1.4             | 64QAM  | 1  | 0 | 20.18  | 20.12 | 20.13  | 22                  | 2        |
| 1.4             | 64QAM  | 1  | 3 | 20.71  | 20.84 | 20.78  |                     |          |
| 1.4             | 64QAM  | 1  | 5 | 20.45  | 20.62 | 20.50  |                     |          |
| 1.4             | 64QAM  | 3  | 0 | 20.18  | 20.22 | 20.20  |                     |          |
| 1.4             | 64QAM  | 3  | 1 | 20.77  | 20.80 | 20.74  |                     |          |
| 1.4             | 64QAM  | 3  | 3 | 20.36  | 20.60 | 20.56  |                     |          |
| 1.4             | 64QAM  | 6  | 0 | 20.02  | 20.10 | 19.93  | 21                  | 3        |
| 1.4             | 256QAM | 1  | 0 | 18.76  | 18.63 | 18.63  | 20                  | 4        |
| 1.4             | 256QAM | 1  | 3 | 19.24  | 19.44 | 19.36  |                     |          |
| 1.4             | 256QAM | 1  | 5 | 19.03  | 19.12 | 19.05  |                     |          |
| 1.4             | 256QAM | 3  | 0 | 18.73  | 18.73 | 18.70  |                     |          |
| 1.4             | 256QAM | 3  | 1 | 19.28  | 19.37 | 19.34  |                     |          |
| 1.4             | 256QAM | 3  | 3 | 18.92  | 19.18 | 19.06  |                     |          |
| 1.4             | 256QAM | 6  | 0 | 18.60  | 18.63 | 18.53  | 20                  | 4        |

<LTE Band 4 Main>

| 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                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1720                  | 1732.5                   | 1745                   |                     |          |
| 20              | QPSK       | 1       | 0         | 23.18                 | 23.06                    | 23.13                  | 24                  | 0        |
| 20              | QPSK       | 1       | 49        | 23.00                 | 22.98                    | 23.08                  |                     |          |
| 20              | QPSK       | 1       | 99        | 23.04                 | 22.99                    | 22.94                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.26                 | 22.09                    | 22.20                  | 23                  | 1        |
| 20              | QPSK       | 50      | 24        | 22.18                 | 21.98                    | 22.17                  |                     |          |
| 20              | QPSK       | 50      | 50        | 22.19                 | 22.13                    | 22.16                  |                     |          |
| 20              | QPSK       | 100     | 0         | 22.12                 | 22.21                    | 22.01                  | 23                  | 1        |
| 20              | 16QAM      | 1       | 0         | 22.30                 | 22.41                    | 22.48                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 22.25                 | 22.56                    | 22.47                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 22.21                 | 22.41                    | 22.51                  | 22                  | 2        |
| 20              | 16QAM      | 50      | 0         | 21.18                 | 21.14                    | 21.16                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 21.22                 | 21.06                    | 21.12                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 21.16                 | 21.21                    | 21.12                  | 22                  | 2        |
| 20              | 16QAM      | 100     | 0         | 21.20                 | 21.21                    | 21.00                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 21.53                 | 21.47                    | 21.64                  | 22                  | 2        |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |     |    |        |        |        |                     |          |
|-----------------|--------|-----|----|--------|--------|--------|---------------------|----------|
| 20              | 64QAM  | 1   | 49 | 21.06  | 21.37  | 21.06  |                     |          |
| 20              | 64QAM  | 1   | 99 | 21.51  | 21.21  | 21.05  |                     |          |
| 20              | 64QAM  | 50  | 0  | 20.22  | 20.17  | 20.27  | 21                  | 3        |
| 20              | 64QAM  | 50  | 24 | 20.16  | 20.12  | 20.23  |                     |          |
| 20              | 64QAM  | 50  | 50 | 20.20  | 20.14  | 20.16  |                     |          |
| 20              | 64QAM  | 100 | 0  | 20.18  | 20.13  | 20.14  |                     |          |
| 20              | 256QAM | 1   | 0  | 19.98  | 19.94  | 19.97  | 20                  | 4        |
| 20              | 256QAM | 1   | 49 | 19.60  | 19.91  | 19.60  |                     |          |
| 20              | 256QAM | 1   | 99 | 19.98  | 19.74  | 19.62  |                     |          |
| 20              | 256QAM | 50  | 0  | 18.82  | 18.73  | 18.87  | 20                  | 4        |
| 20              | 256QAM | 50  | 24 | 18.70  | 18.63  | 18.75  |                     |          |
| 20              | 256QAM | 50  | 50 | 18.80  | 18.72  | 18.69  |                     |          |
| 20              | 256QAM | 100 | 0  | 18.71  | 18.68  | 18.72  |                     |          |
| Channel         |        |     |    | 20025  | 20175  | 20325  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |     |    | 1717.5 | 1732.5 | 1747.5 |                     |          |
| 15              | QPSK   | 1   | 0  | 23.16  | 23.00  | 23.05  | 24                  | 0        |
| 15              | QPSK   | 1   | 37 | 22.99  | 22.92  | 23.03  |                     |          |
| 15              | QPSK   | 1   | 74 | 22.97  | 22.92  | 22.85  |                     |          |
| 15              | QPSK   | 36  | 0  | 22.11  | 21.99  | 22.07  | 23                  | 1        |
| 15              | QPSK   | 36  | 20 | 22.18  | 21.89  | 22.07  |                     |          |
| 15              | QPSK   | 36  | 39 | 22.16  | 22.11  | 22.06  |                     |          |
| 15              | QPSK   | 75  | 0  | 22.04  | 22.12  | 21.92  |                     |          |
| 15              | 16QAM  | 1   | 0  | 22.28  | 22.41  | 22.44  | 23                  | 1        |
| 15              | 16QAM  | 1   | 37 | 22.15  | 22.52  | 22.37  |                     |          |
| 15              | 16QAM  | 1   | 74 | 22.13  | 22.37  | 22.46  |                     |          |
| 15              | 16QAM  | 36  | 0  | 21.13  | 21.11  | 21.10  | 22                  | 2        |
| 15              | 16QAM  | 36  | 20 | 21.16  | 21.05  | 21.08  |                     |          |
| 15              | 16QAM  | 36  | 39 | 21.06  | 21.15  | 21.06  |                     |          |
| 15              | 16QAM  | 75  | 0  | 21.15  | 21.19  | 20.94  |                     |          |
| 15              | 64QAM  | 1   | 0  | 21.44  | 21.39  | 21.59  | 22                  | 2        |
| 15              | 64QAM  | 1   | 37 | 21.05  | 21.37  | 20.97  |                     |          |
| 15              | 64QAM  | 1   | 74 | 21.46  | 21.13  | 21.05  |                     |          |
| 15              | 64QAM  | 36  | 0  | 20.21  | 20.08  | 20.26  | 21                  | 3        |
| 15              | 64QAM  | 36  | 20 | 20.09  | 20.07  | 20.20  |                     |          |
| 15              | 64QAM  | 36  | 39 | 20.10  | 20.08  | 20.07  |                     |          |
| 15              | 64QAM  | 75  | 0  | 20.16  | 20.06  | 20.04  |                     |          |
| 15              | 256QAM | 1   | 0  | 19.95  | 19.96  | 19.96  | 20                  | 4        |
| 15              | 256QAM | 1   | 37 | 19.59  | 19.90  | 19.50  |                     |          |
| 15              | 256QAM | 1   | 74 | 19.90  | 19.72  | 19.60  |                     |          |
| 15              | 256QAM | 36  | 0  | 18.72  | 18.63  | 18.84  | 20                  | 4        |
| 15              | 256QAM | 36  | 20 | 18.66  | 18.63  | 18.77  |                     |          |
| 15              | 256QAM | 36  | 39 | 18.60  | 18.59  | 18.66  |                     |          |
| 15              | 256QAM | 75  | 0  | 18.66  | 18.58  | 18.57  |                     |          |
| Channel         |        |     |    | 20000  | 20175  | 20350  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |     |    | 1715   | 1732.5 | 1750   |                     |          |
| 10              | QPSK   | 1   | 0  | 23.16  | 22.93  | 23.02  | 24                  | 0        |
| 10              | QPSK   | 1   | 25 | 22.95  | 22.89  | 23.01  |                     |          |
| 10              | QPSK   | 1   | 49 | 22.87  | 22.82  | 22.75  |                     |          |
| 10              | QPSK   | 25  | 0  | 22.10  | 21.92  | 22.03  | 23                  | 1        |
| 10              | QPSK   | 25  | 12 | 22.14  | 21.84  | 21.99  |                     |          |
| 10              | QPSK   | 25  | 25 | 22.07  | 22.02  | 21.98  |                     |          |
| 10              | QPSK   | 50  | 0  | 21.97  | 22.07  | 21.83  | 23                  | 1        |
| 10              | 16QAM  | 1   | 0  | 22.28  | 22.34  | 22.38  |                     |          |
| 10              | 16QAM  | 1   | 25 | 22.07  | 22.50  | 22.29  |                     |          |
| 10              | 16QAM  | 1   | 49 | 22.04  | 22.30  | 22.38  |                     |          |
| 10              | 16QAM  | 25  | 0  | 21.09  | 21.02  | 21.00  | 22                  | 2        |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |    |    |        |        |        |    |   |
|-----------------|--------|----|----|--------|--------|--------|----|---|
| 10              | 16QAM  | 25 | 12 | 21.09  | 21.04  | 21.00  |    |   |
| 10              | 16QAM  | 25 | 25 | 21.00  | 21.09  | 20.98  |    |   |
| 10              | 16QAM  | 50 | 0  | 21.08  | 21.14  | 20.86  |    |   |
| 10              | 64QAM  | 1  | 0  | 21.41  | 21.33  | 21.50  | 22 | 2 |
| 10              | 64QAM  | 1  | 25 | 20.95  | 21.28  | 20.88  |    |   |
| 10              | 64QAM  | 1  | 49 | 21.37  | 21.04  | 20.99  |    |   |
| 10              | 64QAM  | 25 | 0  | 20.15  | 20.01  | 20.16  | 21 | 3 |
| 10              | 64QAM  | 25 | 12 | 20.05  | 20.06  | 20.10  |    |   |
| 10              | 64QAM  | 25 | 25 | 20.01  | 20.06  | 19.97  |    |   |
| 10              | 64QAM  | 50 | 0  | 20.10  | 20.05  | 20.04  |    |   |
| 10              | 256QAM | 1  | 0  | 19.96  | 19.89  | 19.92  | 20 | 4 |
| 10              | 256QAM | 1  | 25 | 19.50  | 19.86  | 19.47  |    |   |
| 10              | 256QAM | 1  | 49 | 19.93  | 19.57  | 19.56  |    |   |
| 10              | 256QAM | 25 | 0  | 18.71  | 18.51  | 18.75  | 20 | 4 |
| 10              | 256QAM | 25 | 12 | 18.61  | 18.59  | 18.69  |    |   |
| 10              | 256QAM | 25 | 25 | 18.51  | 18.63  | 18.54  |    |   |
| 10              | 256QAM | 50 | 0  | 18.60  | 18.57  | 18.61  |    |   |
| Channel         |        |    |    | 19975  | 20175  | 20375  |    |   |
| Frequency (MHz) |        |    |    | 1712.5 | 1732.5 | 1752.5 |    |   |
| 5               | QPSK   | 1  | 0  | 23.06  | 22.91  | 22.98  | 24 | 0 |
| 5               | QPSK   | 1  | 12 | 22.88  | 22.79  | 22.94  |    |   |
| 5               | QPSK   | 1  | 24 | 22.86  | 22.78  | 22.69  |    |   |
| 5               | QPSK   | 12 | 0  | 22.00  | 21.85  | 21.99  | 23 | 1 |
| 5               | QPSK   | 12 | 7  | 22.13  | 21.76  | 21.90  |    |   |
| 5               | QPSK   | 12 | 13 | 22.00  | 21.99  | 21.91  |    |   |
| 5               | QPSK   | 25 | 0  | 21.94  | 22.07  | 21.74  |    |   |
| 5               | 16QAM  | 1  | 0  | 22.25  | 22.29  | 22.28  |    |   |
| 5               | 16QAM  | 1  | 12 | 21.99  | 22.50  | 22.27  | 23 | 1 |
| 5               | 16QAM  | 1  | 24 | 22.04  | 22.25  | 22.34  |    |   |
| 5               | 16QAM  | 12 | 0  | 21.03  | 20.97  | 20.95  |    |   |
| 5               | 16QAM  | 12 | 7  | 21.06  | 21.04  | 20.90  | 22 | 2 |
| 5               | 16QAM  | 12 | 13 | 20.90  | 21.04  | 20.88  |    |   |
| 5               | 16QAM  | 25 | 0  | 21.06  | 21.04  | 20.81  |    |   |
| 5               | 64QAM  | 1  | 0  | 21.35  | 21.27  | 21.41  |    |   |
| 5               | 64QAM  | 1  | 12 | 20.92  | 21.19  | 20.78  |    |   |
| 5               | 64QAM  | 1  | 24 | 21.34  | 20.98  | 20.98  | 22 | 2 |
| 5               | 64QAM  | 12 | 0  | 20.12  | 19.93  | 20.13  |    |   |
| 5               | 64QAM  | 12 | 7  | 19.99  | 20.06  | 20.10  |    |   |
| 5               | 64QAM  | 12 | 13 | 19.98  | 20.00  | 19.90  | 21 | 3 |
| 5               | 64QAM  | 25 | 0  | 20.03  | 19.96  | 20.02  |    |   |
| 5               | 256QAM | 1  | 0  | 19.88  | 19.84  | 19.92  |    |   |
| 5               | 256QAM | 1  | 12 | 19.43  | 19.75  | 19.31  |    |   |
| 5               | 256QAM | 1  | 24 | 19.90  | 19.56  | 19.57  |    |   |
| 5               | 256QAM | 12 | 0  | 18.70  | 18.48  | 18.70  | 20 | 4 |
| 5               | 256QAM | 12 | 7  | 18.56  | 18.65  | 18.69  |    |   |
| 5               | 256QAM | 12 | 13 | 18.58  | 18.55  | 18.43  |    |   |
| 5               | 256QAM | 25 | 0  | 18.63  | 18.53  | 18.54  |    |   |
| Channel         |        |    |    | 19965  | 20175  | 20385  |    |   |
| Frequency (MHz) |        |    |    | 1711.5 | 1732.5 | 1753.5 |    |   |
| 3               | QPSK   | 1  | 0  | 23.07  | 22.91  | 22.97  | 24 | 0 |
| 3               | QPSK   | 1  | 8  | 22.88  | 22.81  | 22.96  |    |   |
| 3               | QPSK   | 1  | 14 | 22.79  | 22.64  | 22.72  |    |   |
| 3               | QPSK   | 8  | 0  | 22.06  | 21.82  | 21.94  | 23 | 1 |
| 3               | QPSK   | 8  | 4  | 21.99  | 21.70  | 21.84  |    |   |
| 3               | QPSK   | 8  | 7  | 21.95  | 21.83  | 21.87  |    |   |
| 3               | QPSK   | 15 | 0  | 21.90  | 22.03  | 21.79  |    |   |



|                 |        |    |    |        |        |        |                     |          |
|-----------------|--------|----|----|--------|--------|--------|---------------------|----------|
| 3               | 16QAM  | 1  | 0  | 22.10  | 22.23  | 22.21  | 23                  | 1        |
| 3               | 16QAM  | 1  | 8  | 22.00  | 22.42  | 22.17  |                     |          |
| 3               | 16QAM  | 1  | 14 | 22.01  | 22.21  | 22.31  |                     |          |
| 3               | 16QAM  | 8  | 0  | 20.95  | 20.88  | 20.90  | 22                  | 2        |
| 3               | 16QAM  | 8  | 4  | 20.90  | 21.02  | 20.90  |                     |          |
| 3               | 16QAM  | 8  | 7  | 20.82  | 21.03  | 20.93  |                     |          |
| 3               | 16QAM  | 15 | 0  | 20.95  | 21.03  | 20.82  | 22                  | 2        |
| 3               | 64QAM  | 1  | 0  | 21.37  | 21.24  | 21.40  |                     |          |
| 3               | 64QAM  | 1  | 8  | 20.84  | 21.15  | 20.76  |                     |          |
| 3               | 64QAM  | 1  | 14 | 21.28  | 21.01  | 20.88  | 21                  | 3        |
| 3               | 64QAM  | 8  | 0  | 20.08  | 19.88  | 20.00  |                     |          |
| 3               | 64QAM  | 8  | 4  | 19.99  | 20.04  | 19.98  |                     |          |
| 3               | 64QAM  | 8  | 7  | 19.86  | 19.87  | 19.84  | 20                  | 4        |
| 3               | 64QAM  | 15 | 0  | 19.97  | 19.87  | 19.86  |                     |          |
| 3               | 256QAM | 1  | 0  | 19.90  | 19.75  | 19.94  |                     |          |
| 3               | 256QAM | 1  | 8  | 19.39  | 19.68  | 19.32  | 20                  | 4        |
| 3               | 256QAM | 1  | 14 | 19.82  | 19.56  | 19.45  |                     |          |
| 3               | 256QAM | 8  | 0  | 18.63  | 18.43  | 18.53  |                     |          |
| 3               | 256QAM | 8  | 4  | 18.53  | 18.59  | 18.48  | 20                  | 4        |
| 3               | 256QAM | 8  | 7  | 18.41  | 18.37  | 18.43  |                     |          |
| 3               | 256QAM | 15 | 0  | 18.51  | 18.43  | 18.45  |                     |          |
| Channel         |        |    |    | 19957  | 20175  | 20393  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 1710.7 | 1732.5 | 1754.3 |                     |          |
| 1.4             | QPSK   | 1  | 0  | 22.98  | 22.84  | 22.91  | 24                  | 0        |
| 1.4             | QPSK   | 1  | 3  | 22.79  | 22.75  | 22.91  |                     |          |
| 1.4             | QPSK   | 1  | 5  | 22.77  | 22.57  | 22.72  |                     |          |
| 1.4             | QPSK   | 3  | 0  | 22.97  | 22.75  | 22.88  |                     |          |
| 1.4             | QPSK   | 3  | 1  | 22.77  | 22.66  | 22.81  |                     |          |
| 1.4             | QPSK   | 3  | 3  | 22.68  | 22.50  | 22.70  |                     |          |
| 1.4             | QPSK   | 6  | 0  | 21.80  | 21.94  | 21.78  | 23                  | 1        |
| 1.4             | 16QAM  | 1  | 0  | 22.00  | 22.15  | 22.21  | 23                  | 1        |
| 1.4             | 16QAM  | 1  | 3  | 21.96  | 22.39  | 22.12  |                     |          |
| 1.4             | 16QAM  | 1  | 5  | 21.94  | 22.20  | 22.28  |                     |          |
| 1.4             | 16QAM  | 3  | 0  | 21.94  | 22.13  | 22.11  |                     |          |
| 1.4             | 16QAM  | 3  | 1  | 21.95  | 22.37  | 22.02  |                     |          |
| 1.4             | 16QAM  | 3  | 3  | 21.89  | 22.11  | 22.27  |                     |          |
| 1.4             | 16QAM  | 6  | 0  | 20.94  | 21.03  | 20.79  | 22                  | 2        |
| 1.4             | 64QAM  | 1  | 0  | 21.36  | 21.20  | 21.33  | 22                  | 2        |
| 1.4             | 64QAM  | 1  | 3  | 20.81  | 21.13  | 20.76  |                     |          |
| 1.4             | 64QAM  | 1  | 5  | 21.22  | 20.91  | 20.84  |                     |          |
| 1.4             | 64QAM  | 3  | 0  | 21.36  | 21.12  | 21.31  |                     |          |
| 1.4             | 64QAM  | 3  | 1  | 20.71  | 21.12  | 20.72  |                     |          |
| 1.4             | 64QAM  | 3  | 3  | 21.16  | 20.84  | 20.84  |                     |          |
| 1.4             | 64QAM  | 6  | 0  | 19.90  | 19.78  | 19.84  | 21                  | 3        |
| 1.4             | 256QAM | 1  | 0  | 19.88  | 19.77  | 19.88  | 20                  | 4        |
| 1.4             | 256QAM | 1  | 3  | 19.38  | 19.68  | 19.27  |                     |          |
| 1.4             | 256QAM | 1  | 5  | 19.81  | 19.47  | 19.42  |                     |          |
| 1.4             | 256QAM | 3  | 0  | 19.88  | 19.68  | 19.90  |                     |          |
| 1.4             | 256QAM | 3  | 1  | 19.27  | 19.63  | 19.22  |                     |          |
| 1.4             | 256QAM | 3  | 3  | 19.74  | 19.39  | 19.44  |                     |          |
| 1.4             | 256QAM | 6  | 0  | 18.46  | 18.33  | 18.39  | 20                  | 4        |



**<LTE Band 5 Main>**

| 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         | 23.27                 | 23.17                    | 23.28                  | 24.5                | 0        |                     |          |
| 10              | QPSK       | 1       | 25        | 23.03                 | 23.25                    | 23.10                  |                     |          |                     |          |
| 10              | QPSK       | 1       | 49        | 22.92                 | 23.06                    | 22.86                  |                     |          |                     |          |
| 10              | QPSK       | 25      | 0         | 22.37                 | 22.36                    | 22.38                  | 23.5                | 1        |                     |          |
| 10              | QPSK       | 25      | 12        | 22.30                 | 22.32                    | 22.30                  |                     |          |                     |          |
| 10              | QPSK       | 25      | 25        | 22.28                 | 22.28                    | 22.28                  |                     |          |                     |          |
| 10              | QPSK       | 50      | 0         | 22.36                 | 22.29                    | 22.31                  | 23.5                | 1        |                     |          |
| 10              | 16QAM      | 1       | 0         | 22.82                 | 22.55                    | 22.35                  |                     |          |                     |          |
| 10              | 16QAM      | 1       | 25        | 22.26                 | 22.51                    | 22.27                  |                     |          |                     |          |
| 10              | 16QAM      | 1       | 49        | 22.74                 | 22.58                    | 22.80                  | 22.5                | 2        |                     |          |
| 10              | 16QAM      | 25      | 0         | 21.22                 | 21.18                    | 21.23                  |                     |          |                     |          |
| 10              | 16QAM      | 25      | 12        | 21.27                 | 21.42                    | 21.31                  |                     |          |                     |          |
| 10              | 16QAM      | 25      | 25        | 21.24                 | 21.36                    | 21.39                  | 22.5                | 2        |                     |          |
| 10              | 16QAM      | 50      | 0         | 21.31                 | 21.21                    | 21.14                  |                     |          |                     |          |
| 10              | 64QAM      | 1       | 0         | 21.68                 | 21.69                    | 21.59                  |                     |          |                     |          |
| 10              | 64QAM      | 1       | 25        | 21.27                 | 21.59                    | 21.50                  | 22.5                | 2        |                     |          |
| 10              | 64QAM      | 1       | 49        | 21.37                 | 20.91                    | 21.31                  |                     |          |                     |          |
| 10              | 64QAM      | 25      | 0         | 20.36                 | 20.37                    | 20.28                  |                     |          |                     |          |
| 10              | 64QAM      | 25      | 12        | 20.23                 | 20.37                    | 20.13                  | 21.5                | 3        |                     |          |
| 10              | 64QAM      | 25      | 25        | 20.29                 | 20.34                    | 20.38                  |                     |          |                     |          |
| 10              | 64QAM      | 50      | 0         | 20.25                 | 20.34                    | 20.35                  |                     |          |                     |          |
| 10              | 256QAM     | 1       | 0         | 20.27                 | 20.23                    | 20.12                  | 20.5                | 4        |                     |          |
| 10              | 256QAM     | 1       | 25        | 19.87                 | 20.16                    | 20.00                  |                     |          |                     |          |
| 10              | 256QAM     | 1       | 49        | 19.93                 | 19.48                    | 19.85                  |                     |          |                     |          |
| 10              | 256QAM     | 25      | 0         | 18.87                 | 18.90                    | 18.79                  | 20.5                | 4        |                     |          |
| 10              | 256QAM     | 25      | 12        | 18.78                 | 18.94                    | 18.63                  |                     |          |                     |          |
| 10              | 256QAM     | 25      | 25        | 18.86                 | 18.87                    | 18.89                  |                     |          |                     |          |
| 10              | 256QAM     | 50      | 0         | 18.83                 | 18.89                    | 18.94                  | 20.5                | 4        |                     |          |
| Channel         |            |         |           | 20425                 | 20525                    | 20625                  |                     |          | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 826.5                 | 836.5                    | 846.5                  |                     |          |                     |          |
| 5               | QPSK       | 1       | 0         | 23.22                 | 23.13                    | 23.20                  | 24.5                | 0        |                     |          |
| 5               | QPSK       | 1       | 12        | 22.99                 | 23.16                    | 23.09                  |                     |          |                     |          |
| 5               | QPSK       | 1       | 24        | 22.92                 | 22.99                    | 22.79                  |                     |          |                     |          |
| 5               | QPSK       | 12      | 0         | 22.07                 | 22.35                    | 22.26                  | 23.5                | 1        |                     |          |
| 5               | QPSK       | 12      | 7         | 22.29                 | 22.29                    | 22.20                  |                     |          |                     |          |
| 5               | QPSK       | 12      | 13        | 22.24                 | 22.33                    | 22.34                  |                     |          |                     |          |
| 5               | QPSK       | 25      | 0         | 22.31                 | 22.24                    | 22.27                  | 23.5                | 1        |                     |          |
| 5               | 16QAM      | 1       | 0         | 22.75                 | 22.51                    | 22.30                  |                     |          |                     |          |
| 5               | 16QAM      | 1       | 12        | 22.25                 | 22.48                    | 22.19                  |                     |          |                     |          |
| 5               | 16QAM      | 1       | 24        | 22.67                 | 22.53                    | 22.73                  | 22.5                | 2        |                     |          |
| 5               | 16QAM      | 12      | 0         | 21.13                 | 21.08                    | 21.21                  |                     |          |                     |          |
| 5               | 16QAM      | 12      | 7         | 21.22                 | 21.38                    | 21.29                  |                     |          |                     |          |
| 5               | 16QAM      | 12      | 13        | 21.17                 | 21.34                    | 21.36                  | 22.5                | 2        |                     |          |
| 5               | 16QAM      | 25      | 0         | 21.29                 | 21.20                    | 21.07                  |                     |          |                     |          |
| 5               | 64QAM      | 1       | 0         | 21.66                 | 21.67                    | 21.49                  |                     |          |                     |          |
| 5               | 64QAM      | 1       | 12        | 21.23                 | 21.49                    | 21.46                  | 22.5                | 2        |                     |          |
| 5               | 64QAM      | 1       | 24        | 21.31                 | 20.85                    | 21.25                  |                     |          |                     |          |
| 5               | 64QAM      | 12      | 0         | 20.34                 | 20.34                    | 20.24                  |                     |          |                     |          |
| 5               | 64QAM      | 12      | 7         | 20.18                 | 20.32                    | 20.11                  | 21.5                | 3        |                     |          |
| 5               | 64QAM      | 12      | 13        | 20.27                 | 20.33                    | 20.30                  |                     |          |                     |          |
| 5               | 64QAM      | 25      | 0         | 20.24                 | 20.27                    | 20.27                  |                     |          |                     |          |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |    |    |       |       |       |                     |          |
|-----------------|--------|----|----|-------|-------|-------|---------------------|----------|
| 5               | 256QAM | 1  | 0  | 20.18 | 20.24 | 20.04 | 20.5                | 4        |
| 5               | 256QAM | 1  | 12 | 19.79 | 20.04 | 20.05 |                     |          |
| 5               | 256QAM | 1  | 24 | 19.83 | 19.41 | 19.76 |                     |          |
| 5               | 256QAM | 12 | 0  | 18.94 | 18.89 | 18.77 | 20.5                | 4        |
| 5               | 256QAM | 12 | 7  | 18.68 | 18.85 | 18.69 |                     |          |
| 5               | 256QAM | 12 | 13 | 18.82 | 18.85 | 18.90 |                     |          |
| 5               | 256QAM | 25 | 0  | 18.81 | 18.78 | 18.87 |                     |          |
| Channel         |        |    |    | 20415 | 20525 | 20635 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 825.5 | 836.5 | 847.5 |                     |          |
| 3               | QPSK   | 1  | 0  | 23.18 | 23.12 | 23.13 | 24.5                | 0        |
| 3               | QPSK   | 1  | 8  | 22.90 | 23.07 | 23.01 |                     |          |
| 3               | QPSK   | 1  | 14 | 22.90 | 22.93 | 22.78 |                     |          |
| 3               | QPSK   | 8  | 0  | 22.06 | 22.26 | 22.16 | 23.5                | 1        |
| 3               | QPSK   | 8  | 4  | 22.26 | 22.25 | 22.13 |                     |          |
| 3               | QPSK   | 8  | 7  | 22.22 | 22.26 | 22.33 |                     |          |
| 3               | QPSK   | 15 | 0  | 22.24 | 22.18 | 22.22 |                     |          |
| 3               | 16QAM  | 1  | 0  | 22.70 | 22.42 | 22.23 | 23.5                | 1        |
| 3               | 16QAM  | 1  | 8  | 22.18 | 22.47 | 22.15 |                     |          |
| 3               | 16QAM  | 1  | 14 | 22.57 | 22.43 | 22.63 |                     |          |
| 3               | 16QAM  | 8  | 0  | 21.03 | 21.02 | 21.17 | 22.5                | 2        |
| 3               | 16QAM  | 8  | 4  | 21.19 | 21.33 | 21.29 |                     |          |
| 3               | 16QAM  | 8  | 7  | 21.16 | 21.32 | 21.29 |                     |          |
| 3               | 16QAM  | 15 | 0  | 21.27 | 21.15 | 21.06 |                     |          |
| 3               | 64QAM  | 1  | 0  | 21.63 | 21.66 | 21.43 | 22.5                | 2        |
| 3               | 64QAM  | 1  | 8  | 21.21 | 21.41 | 21.42 |                     |          |
| 3               | 64QAM  | 1  | 14 | 21.29 | 20.79 | 21.24 |                     |          |
| 3               | 64QAM  | 8  | 0  | 20.28 | 20.30 | 20.21 | 21.5                | 3        |
| 3               | 64QAM  | 8  | 4  | 20.10 | 20.31 | 20.09 |                     |          |
| 3               | 64QAM  | 8  | 7  | 20.25 | 20.29 | 20.27 |                     |          |
| 3               | 64QAM  | 15 | 0  | 20.20 | 20.20 | 20.26 |                     |          |
| 3               | 256QAM | 1  | 0  | 20.19 | 20.25 | 20.03 | 20.5                | 4        |
| 3               | 256QAM | 1  | 8  | 19.77 | 19.93 | 19.98 |                     |          |
| 3               | 256QAM | 1  | 14 | 19.83 | 19.36 | 19.76 |                     |          |
| 3               | 256QAM | 8  | 0  | 18.84 | 18.86 | 18.79 | 20.5                | 4        |
| 3               | 256QAM | 8  | 4  | 18.70 | 18.88 | 18.62 |                     |          |
| 3               | 256QAM | 8  | 7  | 18.76 | 18.81 | 18.81 |                     |          |
| 3               | 256QAM | 15 | 0  | 18.71 | 18.72 | 18.77 |                     |          |
| Channel         |        |    |    | 20407 | 20525 | 20643 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 824.7 | 836.5 | 848.3 |                     |          |
| 1.4             | QPSK   | 1  | 0  | 23.11 | 22.98 | 23.06 | 24.5                | 0        |
| 1.4             | QPSK   | 1  | 3  | 22.91 | 23.11 | 23.04 |                     |          |
| 1.4             | QPSK   | 1  | 5  | 22.74 | 22.82 | 22.71 |                     |          |
| 1.4             | QPSK   | 3  | 0  | 23.13 | 22.95 | 23.07 |                     |          |
| 1.4             | QPSK   | 3  | 1  | 22.92 | 23.13 | 22.98 |                     |          |
| 1.4             | QPSK   | 3  | 3  | 22.82 | 22.87 | 22.63 |                     |          |
| 1.4             | QPSK   | 6  | 0  | 22.21 | 22.09 | 22.14 | 23.5                | 1        |
| 1.4             | 16QAM  | 1  | 0  | 22.55 | 22.51 | 22.22 | 23.5                | 1        |
| 1.4             | 16QAM  | 1  | 3  | 22.15 | 22.28 | 22.09 |                     |          |
| 1.4             | 16QAM  | 1  | 5  | 22.52 | 22.46 | 22.61 |                     |          |
| 1.4             | 16QAM  | 3  | 0  | 22.21 | 22.10 | 22.12 |                     |          |
| 1.4             | 16QAM  | 3  | 1  | 22.12 | 22.25 | 22.30 | 22.5                | 2        |
| 1.4             | 16QAM  | 3  | 3  | 22.17 | 22.09 | 22.19 |                     |          |
| 1.4             | 16QAM  | 6  | 0  | 21.23 | 21.11 | 20.96 |                     |          |
| 1.4             | 64QAM  | 1  | 0  | 21.51 | 21.54 | 21.48 | 22.5                | 2        |
| 1.4             | 64QAM  | 1  | 3  | 21.09 | 21.38 | 21.42 |                     |          |
| 1.4             | 64QAM  | 1  | 5  | 21.16 | 20.77 | 21.11 |                     |          |



|     |        |   |   |       |       |       |      |   |
|-----|--------|---|---|-------|-------|-------|------|---|
| 1.4 | 64QAM  | 3 | 0 | 21.55 | 21.53 | 21.43 |      |   |
| 1.4 | 64QAM  | 3 | 1 | 21.14 | 21.45 | 21.43 |      |   |
| 1.4 | 64QAM  | 3 | 3 | 21.13 | 20.76 | 21.13 |      |   |
| 1.4 | 64QAM  | 6 | 0 | 20.19 | 20.10 | 20.23 | 21.5 | 3 |
| 1.4 | 256QAM | 1 | 0 | 20.05 | 20.04 | 20.04 | 20.5 | 4 |
| 1.4 | 256QAM | 1 | 3 | 19.68 | 19.97 | 20.01 |      |   |
| 1.4 | 256QAM | 1 | 5 | 19.75 | 19.34 | 19.69 |      |   |
| 1.4 | 256QAM | 3 | 0 | 20.06 | 20.09 | 19.96 |      |   |
| 1.4 | 256QAM | 3 | 1 | 19.69 | 20.02 | 20.02 |      |   |
| 1.4 | 256QAM | 3 | 3 | 19.65 | 19.36 | 19.73 |      |   |
| 1.4 | 256QAM | 6 | 0 | 18.73 | 18.61 | 18.74 | 20.5 | 4 |

**<LTE Band 7 Main>**

| Channel         | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |        |    |   |
|-----------------|-----------------------|--------------------------|------------------------|---------------------|----------|--------|----|---|
| Channel         |                       |                          |                        | 20850               | 21100    | 21350  |    |   |
| Frequency (MHz) |                       |                          |                        | 2510                | 2535     | 2560   |    |   |
| 20              | QPSK                  | 1                        | 0                      | 23.02               | 23.05    | 23.01  | 24 | 0 |
| 20              | QPSK                  | 1                        | 49                     | 22.92               | 22.94    | 22.92  |    |   |
| 20              | QPSK                  | 1                        | 99                     | 22.94               | 22.97    | 22.99  |    |   |
| 20              | QPSK                  | 50                       | 0                      | 22.16               | 22.17    | 22.14  | 23 | 1 |
| 20              | QPSK                  | 50                       | 24                     | 22.13               | 22.08    | 22.01  |    |   |
| 20              | QPSK                  | 50                       | 50                     | 22.08               | 22.06    | 22.04  |    |   |
| 20              | QPSK                  | 100                      | 0                      | 22.08               | 22.12    | 22.01  | 23 | 1 |
| 20              | 16QAM                 | 1                        | 0                      | 22.31               | 22.20    | 21.95  |    |   |
| 20              | 16QAM                 | 1                        | 49                     | 22.55               | 22.19    | 22.17  |    |   |
| 20              | 16QAM                 | 1                        | 99                     | 22.25               | 22.30    | 22.29  | 22 | 2 |
| 20              | 16QAM                 | 50                       | 0                      | 21.03               | 21.04    | 21.11  |    |   |
| 20              | 16QAM                 | 50                       | 24                     | 21.19               | 21.11    | 21.01  |    |   |
| 20              | 16QAM                 | 50                       | 50                     | 21.16               | 21.14    | 21.15  | 22 | 2 |
| 20              | 16QAM                 | 100                      | 0                      | 21.16               | 21.10    | 20.93  |    |   |
| 20              | 64QAM                 | 1                        | 0                      | 21.04               | 21.11    | 21.22  |    |   |
| 20              | 64QAM                 | 1                        | 49                     | 21.19               | 21.00    | 20.90  | 22 | 2 |
| 20              | 64QAM                 | 1                        | 99                     | 21.21               | 21.24    | 21.38  |    |   |
| 20              | 64QAM                 | 50                       | 0                      | 19.99               | 20.06    | 20.06  |    |   |
| 20              | 64QAM                 | 50                       | 24                     | 20.13               | 20.06    | 20.07  | 21 | 3 |
| 20              | 64QAM                 | 50                       | 50                     | 20.15               | 20.10    | 20.08  |    |   |
| 20              | 64QAM                 | 100                      | 0                      | 20.18               | 20.11    | 20.10  |    |   |
| 20              | 256QAM                | 1                        | 0                      | 19.57               | 19.65    | 19.77  | 20 | 4 |
| 20              | 256QAM                | 1                        | 49                     | 19.71               | 19.50    | 19.43  |    |   |
| 20              | 256QAM                | 1                        | 99                     | 19.73               | 19.78    | 19.90  |    |   |
| 20              | 256QAM                | 50                       | 0                      | 18.59               | 18.59    | 18.57  | 20 | 4 |
| 20              | 256QAM                | 50                       | 24                     | 18.70               | 18.59    | 18.63  |    |   |
| 20              | 256QAM                | 50                       | 50                     | 18.71               | 18.69    | 18.65  |    |   |
| 20              | 256QAM                | 100                      | 0                      | 18.69               | 18.67    | 18.64  | 20 | 4 |
| Channel         |                       |                          |                        | 20825               | 21100    | 21375  |    |   |
| Frequency (MHz) |                       |                          |                        | 2507.5              | 2535     | 2562.5 |    |   |
| 15              | QPSK                  | 1                        | 0                      | 22.86               | 22.82    | 22.88  | 24 | 0 |
| 15              | QPSK                  | 1                        | 37                     | 22.91               | 23.00    | 22.84  |    |   |
| 15              | QPSK                  | 1                        | 74                     | 22.93               | 22.96    | 22.91  |    |   |
| 15              | QPSK                  | 36                       | 0                      | 21.96               | 21.88    | 21.92  | 23 | 1 |
| 15              | QPSK                  | 36                       | 20                     | 22.05               | 22.17    | 21.96  |    |   |
| 15              | QPSK                  | 36                       | 39                     | 22.15               | 22.10    | 22.06  |    |   |
| 15              | QPSK                  | 75                       | 0                      | 21.99               | 22.10    | 21.96  | 23 | 1 |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |    |    |        |       |        |                     |          |                     |          |
|-----------------|--------|----|----|--------|-------|--------|---------------------|----------|---------------------|----------|
| 15              | 16QAM  | 1  | 0  | 22.22  | 22.20 | 21.87  | 23                  | 1        |                     |          |
| 15              | 16QAM  | 1  | 37 | 22.49  | 22.11 | 22.09  |                     |          |                     |          |
| 15              | 16QAM  | 1  | 74 | 22.24  | 22.25 | 22.20  |                     |          |                     |          |
| 15              | 16QAM  | 36 | 0  | 20.94  | 21.02 | 21.01  | 22                  | 2        |                     |          |
| 15              | 16QAM  | 36 | 20 | 21.14  | 21.10 | 20.99  |                     |          |                     |          |
| 15              | 16QAM  | 36 | 39 | 21.15  | 21.13 | 21.06  |                     |          |                     |          |
| 15              | 16QAM  | 75 | 0  | 21.06  | 21.08 | 20.93  | 22                  | 2        |                     |          |
| 15              | 64QAM  | 1  | 0  | 20.95  | 21.04 | 21.17  |                     |          |                     |          |
| 15              | 64QAM  | 1  | 37 | 21.09  | 20.99 | 20.86  |                     |          |                     |          |
| 15              | 64QAM  | 1  | 74 | 21.14  | 21.22 | 21.36  | 21                  | 3        |                     |          |
| 15              | 64QAM  | 36 | 0  | 19.93  | 20.03 | 20.03  |                     |          |                     |          |
| 15              | 64QAM  | 36 | 20 | 20.05  | 19.99 | 20.07  |                     |          |                     |          |
| 15              | 64QAM  | 36 | 39 | 20.11  | 20.04 | 20.00  | 20                  | 4        |                     |          |
| 15              | 64QAM  | 75 | 0  | 20.17  | 20.05 | 20.01  |                     |          |                     |          |
| 15              | 256QAM | 1  | 0  | 19.54  | 19.63 | 19.75  |                     |          |                     |          |
| 15              | 256QAM | 1  | 37 | 19.69  | 19.50 | 19.41  | 20                  | 4        |                     |          |
| 15              | 256QAM | 1  | 74 | 19.69  | 19.80 | 19.96  |                     |          |                     |          |
| 15              | 256QAM | 36 | 0  | 18.46  | 18.59 | 18.60  |                     |          |                     |          |
| 15              | 256QAM | 36 | 20 | 18.63  | 18.52 | 18.63  | 20                  | 4        |                     |          |
| 15              | 256QAM | 36 | 39 | 18.68  | 18.62 | 18.52  |                     |          |                     |          |
| 15              | 256QAM | 75 | 0  | 18.75  | 18.65 | 18.53  |                     |          |                     |          |
| Channel         |        |    |    | 20800  | 21100 | 21400  | Tune-up limit (dBm) | MPR (dB) |                     |          |
| Frequency (MHz) |        |    |    | 2505   | 2535  | 2565   |                     |          |                     |          |
| 10              | QPSK   | 1  | 0  | 22.81  | 22.79 | 22.85  | 24                  | 0        |                     |          |
| 10              | QPSK   | 1  | 25 | 22.88  | 22.97 | 22.82  |                     |          |                     |          |
| 10              | QPSK   | 1  | 49 | 22.85  | 22.90 | 22.83  |                     |          |                     |          |
| 10              | QPSK   | 25 | 0  | 21.96  | 21.79 | 21.91  | 23                  | 1        |                     |          |
| 10              | QPSK   | 25 | 12 | 21.95  | 22.11 | 21.93  |                     |          |                     |          |
| 10              | QPSK   | 25 | 25 | 22.10  | 22.04 | 21.98  |                     |          |                     |          |
| 10              | QPSK   | 50 | 0  | 21.95  | 22.03 | 21.90  | 23                  | 1        |                     |          |
| 10              | 16QAM  | 1  | 0  | 22.18  | 22.15 | 21.81  |                     |          |                     |          |
| 10              | 16QAM  | 1  | 25 | 22.48  | 22.02 | 22.04  |                     |          |                     |          |
| 10              | 16QAM  | 1  | 49 | 22.22  | 22.16 | 22.15  | 22                  | 2        |                     |          |
| 10              | 16QAM  | 25 | 0  | 20.85  | 21.02 | 20.95  |                     |          |                     |          |
| 10              | 16QAM  | 25 | 12 | 21.05  | 21.00 | 20.95  |                     |          |                     |          |
| 10              | 16QAM  | 25 | 25 | 21.11  | 21.13 | 21.00  | 22                  | 2        |                     |          |
| 10              | 16QAM  | 50 | 0  | 20.99  | 20.99 | 20.88  |                     |          |                     |          |
| 10              | 64QAM  | 1  | 0  | 20.89  | 21.04 | 21.17  |                     |          |                     |          |
| 10              | 64QAM  | 1  | 25 | 21.01  | 20.93 | 20.79  | 22                  | 2        |                     |          |
| 10              | 64QAM  | 1  | 49 | 21.12  | 21.21 | 21.33  |                     |          |                     |          |
| 10              | 64QAM  | 25 | 0  | 19.87  | 20.00 | 20.01  |                     |          |                     |          |
| 10              | 64QAM  | 25 | 12 | 19.96  | 19.97 | 20.01  | 21                  | 3        |                     |          |
| 10              | 64QAM  | 25 | 25 | 20.08  | 20.04 | 19.98  |                     |          |                     |          |
| 10              | 64QAM  | 50 | 0  | 20.14  | 19.96 | 20.01  |                     |          |                     |          |
| 10              | 256QAM | 1  | 0  | 19.39  | 19.54 | 19.72  | 20                  | 4        |                     |          |
| 10              | 256QAM | 1  | 25 | 19.53  | 19.53 | 19.29  |                     |          |                     |          |
| 10              | 256QAM | 1  | 49 | 19.62  | 19.80 | 19.84  |                     |          |                     |          |
| 10              | 256QAM | 25 | 0  | 18.39  | 18.51 | 18.56  | 20                  | 4        |                     |          |
| 10              | 256QAM | 25 | 12 | 18.56  | 18.47 | 18.54  |                     |          |                     |          |
| 10              | 256QAM | 25 | 25 | 18.67  | 18.56 | 18.53  |                     |          |                     |          |
| 10              | 256QAM | 50 | 0  | 18.70  | 18.54 | 18.56  | 20                  | 4        |                     |          |
| Channel         |        |    |    | 20775  | 21100 | 21425  |                     |          | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 2502.5 | 2535  | 2567.5 |                     |          |                     |          |
| 5               | QPSK   | 1  | 0  | 22.77  | 22.74 | 22.77  | 24                  | 0        |                     |          |
| 5               | QPSK   | 1  | 12 | 22.82  | 22.95 | 22.77  |                     |          |                     |          |
| 5               | QPSK   | 1  | 24 | 22.85  | 22.88 | 22.83  |                     |          |                     |          |





|   |        |    |    |       |       |       |    |   |
|---|--------|----|----|-------|-------|-------|----|---|
| 5 | QPSK   | 12 | 0  | 21.89 | 21.76 | 21.91 | 23 | 1 |
| 5 | QPSK   | 12 | 7  | 21.89 | 22.02 | 21.83 |    |   |
| 5 | QPSK   | 12 | 13 | 22.05 | 22.04 | 21.95 |    |   |
| 5 | QPSK   | 25 | 0  | 21.86 | 21.98 | 21.85 | 23 | 1 |
| 5 | 16QAM  | 1  | 0  | 22.13 | 22.06 | 21.77 |    |   |
| 5 | 16QAM  | 1  | 12 | 22.44 | 21.94 | 22.03 |    |   |
| 5 | 16QAM  | 1  | 24 | 22.14 | 22.14 | 22.10 | 22 | 2 |
| 5 | 16QAM  | 12 | 0  | 20.78 | 21.00 | 20.90 |    |   |
| 5 | 16QAM  | 12 | 7  | 20.96 | 20.94 | 20.95 |    |   |
| 5 | 16QAM  | 12 | 13 | 21.05 | 21.13 | 20.99 |    |   |
| 5 | 16QAM  | 25 | 0  | 20.92 | 20.91 | 20.86 | 22 | 2 |
| 5 | 64QAM  | 1  | 0  | 20.88 | 21.03 | 21.11 |    |   |
| 5 | 64QAM  | 1  | 12 | 20.96 | 20.85 | 20.73 |    |   |
| 5 | 64QAM  | 1  | 24 | 21.07 | 21.20 | 21.23 |    |   |
| 5 | 64QAM  | 12 | 0  | 19.77 | 19.97 | 19.93 | 21 | 3 |
| 5 | 64QAM  | 12 | 7  | 19.87 | 19.92 | 19.94 |    |   |
| 5 | 64QAM  | 12 | 13 | 19.98 | 19.94 | 19.96 |    |   |
| 5 | 64QAM  | 25 | 0  | 20.13 | 19.93 | 19.98 |    |   |
| 5 | 256QAM | 1  | 0  | 19.46 | 19.55 | 19.71 | 20 | 4 |
| 5 | 256QAM | 1  | 12 | 19.55 | 19.41 | 19.29 |    |   |
| 5 | 256QAM | 1  | 24 | 19.60 | 19.76 | 19.78 |    |   |
| 5 | 256QAM | 12 | 0  | 18.36 | 18.56 | 18.51 | 20 | 4 |
| 5 | 256QAM | 12 | 7  | 18.44 | 18.46 | 18.44 |    |   |
| 5 | 256QAM | 12 | 13 | 18.49 | 18.47 | 18.50 |    |   |
| 5 | 256QAM | 25 | 0  | 18.70 | 18.49 | 18.57 |    |   |

<LTE Band 7 Aux 2>

| 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         |            |         |           | 20850                 | 21100                    | 21350                  |                     |          |
| Frequency (MHz) |            |         |           | 2510                  | 2535                     | 2560                   |                     |          |
| 20              | QPSK       | 1       | 0         | 23.02                 | 23.05                    | 23.01                  | 24                  | 0        |
| 20              | QPSK       | 1       | 49        | 22.92                 | 22.94                    | 22.92                  |                     |          |
| 20              | QPSK       | 1       | 99        | 22.94                 | 22.97                    | 22.99                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.16                 | 22.17                    | 22.14                  | 23                  | 1        |
| 20              | QPSK       | 50      | 24        | 22.13                 | 22.08                    | 22.01                  |                     |          |
| 20              | QPSK       | 50      | 50        | 22.08                 | 22.06                    | 22.04                  |                     |          |
| 20              | QPSK       | 100     | 0         | 22.08                 | 22.12                    | 22.01                  |                     |          |
| 20              | 16QAM      | 1       | 0         | 22.31                 | 22.20                    | 21.95                  | 23                  | 1        |
| 20              | 16QAM      | 1       | 49        | 22.55                 | 22.19                    | 22.17                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 22.25                 | 22.30                    | 22.29                  |                     |          |
| 20              | 16QAM      | 50      | 0         | 21.03                 | 21.04                    | 21.11                  | 22                  | 2        |
| 20              | 16QAM      | 50      | 24        | 21.19                 | 21.11                    | 21.01                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 21.16                 | 21.14                    | 21.15                  |                     |          |
| 20              | 16QAM      | 100     | 0         | 21.16                 | 21.10                    | 20.93                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 21.04                 | 21.11                    | 21.22                  | 22                  | 2        |
| 20              | 64QAM      | 1       | 49        | 21.19                 | 21.00                    | 20.90                  |                     |          |
| 20              | 64QAM      | 1       | 99        | 21.21                 | 21.24                    | 21.38                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 19.99                 | 20.06                    | 20.06                  | 21                  | 3        |
| 20              | 64QAM      | 50      | 24        | 20.13                 | 20.06                    | 20.07                  |                     |          |
| 20              | 64QAM      | 50      | 50        | 20.15                 | 20.10                    | 20.08                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 20.18                 | 20.11                    | 20.10                  |                     |          |
| 20              | 256QAM     | 1       | 0         | 18.60                 | 18.69                    | 18.60                  | 20                  | 4        |
| 20              | 256QAM     | 1       | 49        | 18.72                 | 18.67                    | 18.72                  |                     |          |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |     |    |        |       |        |                     |          |
|-----------------|--------|-----|----|--------|-------|--------|---------------------|----------|
| 20              | 256QAM | 1   | 99 | 18.72  | 18.69 | 18.60  |                     |          |
| 20              | 256QAM | 50  | 0  | 18.29  | 18.27 | 18.23  | 20                  | 4        |
| 20              | 256QAM | 50  | 24 | 18.24  | 18.25 | 18.19  |                     |          |
| 20              | 256QAM | 50  | 50 | 18.76  | 18.89 | 18.85  |                     |          |
| 20              | 256QAM | 100 | 0  | 18.18  | 18.16 | 18.01  |                     |          |
| Channel         |        |     |    | 20825  | 21100 | 21375  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |     |    | 2507.5 | 2535  | 2562.5 |                     |          |
| 15              | QPSK   | 1   | 0  | 22.86  | 22.82 | 22.88  | 24                  | 0        |
| 15              | QPSK   | 1   | 37 | 22.91  | 23.00 | 22.84  |                     |          |
| 15              | QPSK   | 1   | 74 | 22.93  | 22.96 | 22.91  |                     |          |
| 15              | QPSK   | 36  | 0  | 21.96  | 21.88 | 21.92  | 23                  | 1        |
| 15              | QPSK   | 36  | 20 | 22.05  | 22.17 | 21.96  |                     |          |
| 15              | QPSK   | 36  | 39 | 22.15  | 22.10 | 22.06  |                     |          |
| 15              | QPSK   | 75  | 0  | 21.99  | 22.10 | 21.96  |                     |          |
| 15              | 16QAM  | 1   | 0  | 22.22  | 22.20 | 21.87  | 23                  | 1        |
| 15              | 16QAM  | 1   | 37 | 22.49  | 22.11 | 22.09  |                     |          |
| 15              | 16QAM  | 1   | 74 | 22.24  | 22.25 | 22.20  |                     |          |
| 15              | 16QAM  | 36  | 0  | 20.94  | 21.02 | 21.01  | 22                  | 2        |
| 15              | 16QAM  | 36  | 20 | 21.14  | 21.10 | 20.99  |                     |          |
| 15              | 16QAM  | 36  | 39 | 21.15  | 21.13 | 21.06  |                     |          |
| 15              | 16QAM  | 75  | 0  | 21.06  | 21.08 | 20.93  |                     |          |
| 15              | 64QAM  | 1   | 0  | 20.95  | 21.04 | 21.17  | 22                  | 2        |
| 15              | 64QAM  | 1   | 37 | 21.09  | 20.99 | 20.86  |                     |          |
| 15              | 64QAM  | 1   | 74 | 21.14  | 21.22 | 21.36  |                     |          |
| 15              | 64QAM  | 36  | 0  | 19.93  | 20.03 | 20.03  | 21                  | 3        |
| 15              | 64QAM  | 36  | 20 | 20.05  | 19.99 | 20.07  |                     |          |
| 15              | 64QAM  | 36  | 39 | 20.11  | 20.04 | 20.00  |                     |          |
| 15              | 64QAM  | 75  | 0  | 20.17  | 20.05 | 20.01  |                     |          |
| 15              | 256QAM | 1   | 0  | 18.62  | 18.73 | 18.82  | 20                  | 4        |
| 15              | 256QAM | 1   | 37 | 18.67  | 18.67 | 18.59  |                     |          |
| 15              | 256QAM | 1   | 74 | 18.72  | 18.67 | 18.75  |                     |          |
| 15              | 256QAM | 36  | 0  | 18.06  | 18.03 | 18.00  | 20                  | 4        |
| 15              | 256QAM | 36  | 20 | 18.25  | 18.18 | 18.16  |                     |          |
| 15              | 256QAM | 36  | 39 | 18.75  | 18.91 | 18.78  |                     |          |
| 15              | 256QAM | 75  | 0  | 18.15  | 18.19 | 18.17  |                     |          |
| Channel         |        |     |    | 20800  | 21100 | 21400  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |     |    | 2505   | 2535  | 2565   |                     |          |
| 10              | QPSK   | 1   | 0  | 22.81  | 22.79 | 22.85  | 24                  | 0        |
| 10              | QPSK   | 1   | 25 | 22.88  | 22.97 | 22.82  |                     |          |
| 10              | QPSK   | 1   | 49 | 22.85  | 22.90 | 22.83  |                     |          |
| 10              | QPSK   | 25  | 0  | 21.96  | 21.79 | 21.91  | 23                  | 1        |
| 10              | QPSK   | 25  | 12 | 21.95  | 22.11 | 21.93  |                     |          |
| 10              | QPSK   | 25  | 25 | 22.10  | 22.04 | 21.98  |                     |          |
| 10              | QPSK   | 50  | 0  | 21.95  | 22.03 | 21.90  |                     |          |
| 10              | 16QAM  | 1   | 0  | 22.18  | 22.15 | 21.81  | 23                  | 1        |
| 10              | 16QAM  | 1   | 25 | 22.48  | 22.02 | 22.04  |                     |          |
| 10              | 16QAM  | 1   | 49 | 22.22  | 22.16 | 22.15  |                     |          |
| 10              | 16QAM  | 25  | 0  | 20.85  | 21.02 | 20.95  | 22                  | 2        |
| 10              | 16QAM  | 25  | 12 | 21.05  | 21.00 | 20.95  |                     |          |
| 10              | 16QAM  | 25  | 25 | 21.11  | 21.13 | 21.00  |                     |          |
| 10              | 16QAM  | 50  | 0  | 20.99  | 20.99 | 20.88  |                     |          |
| 10              | 64QAM  | 1   | 0  | 20.89  | 21.04 | 21.17  | 22                  | 2        |
| 10              | 64QAM  | 1   | 25 | 21.01  | 20.93 | 20.79  |                     |          |
| 10              | 64QAM  | 1   | 49 | 21.12  | 21.21 | 21.33  |                     |          |
| 10              | 64QAM  | 25  | 0  | 19.87  | 20.00 | 20.01  | 21                  | 3        |
| 10              | 64QAM  | 25  | 12 | 19.96  | 19.97 | 20.01  |                     |          |



|                 |        |    |    |        |       |        |                     |          |
|-----------------|--------|----|----|--------|-------|--------|---------------------|----------|
| 10              | 64QAM  | 25 | 25 | 20.08  | 20.04 | 19.98  |                     |          |
| 10              | 64QAM  | 50 | 0  | 20.14  | 19.96 | 20.01  |                     |          |
| 10              | 256QAM | 1  | 0  | 18.60  | 18.67 | 18.69  | 20                  | 4        |
| 10              | 256QAM | 1  | 25 | 18.64  | 18.59 | 18.54  |                     |          |
| 10              | 256QAM | 1  | 49 | 18.62  | 18.53 | 18.79  |                     |          |
| 10              | 256QAM | 25 | 0  | 18.08  | 18.09 | 18.02  | 20                  | 4        |
| 10              | 256QAM | 25 | 12 | 18.17  | 18.18 | 18.17  |                     |          |
| 10              | 256QAM | 25 | 25 | 18.70  | 18.80 | 18.76  |                     |          |
| 10              | 256QAM | 50 | 0  | 18.13  | 18.20 | 18.16  |                     |          |
| Channel         |        |    |    | 20775  | 21100 | 21425  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 2502.5 | 2535  | 2567.5 |                     |          |
| 5               | QPSK   | 1  | 0  | 22.77  | 22.74 | 22.77  | 24                  | 0        |
| 5               | QPSK   | 1  | 12 | 22.82  | 22.95 | 22.77  |                     |          |
| 5               | QPSK   | 1  | 24 | 22.85  | 22.88 | 22.83  |                     |          |
| 5               | QPSK   | 12 | 0  | 21.89  | 21.76 | 21.91  | 23                  | 1        |
| 5               | QPSK   | 12 | 7  | 21.89  | 22.02 | 21.83  |                     |          |
| 5               | QPSK   | 12 | 13 | 22.05  | 22.04 | 21.95  |                     |          |
| 5               | QPSK   | 25 | 0  | 21.86  | 21.98 | 21.85  |                     |          |
| 5               | 16QAM  | 1  | 0  | 22.13  | 22.06 | 21.77  | 23                  | 1        |
| 5               | 16QAM  | 1  | 12 | 22.44  | 21.94 | 22.03  |                     |          |
| 5               | 16QAM  | 1  | 24 | 22.14  | 22.14 | 22.10  |                     |          |
| 5               | 16QAM  | 12 | 0  | 20.78  | 21.00 | 20.90  | 22                  | 2        |
| 5               | 16QAM  | 12 | 7  | 20.96  | 20.94 | 20.95  |                     |          |
| 5               | 16QAM  | 12 | 13 | 21.05  | 21.13 | 20.99  |                     |          |
| 5               | 16QAM  | 25 | 0  | 20.92  | 20.91 | 20.86  |                     |          |
| 5               | 64QAM  | 1  | 0  | 20.88  | 21.03 | 21.11  | 22                  | 2        |
| 5               | 64QAM  | 1  | 12 | 20.96  | 20.85 | 20.73  |                     |          |
| 5               | 64QAM  | 1  | 24 | 21.07  | 21.20 | 21.23  |                     |          |
| 5               | 64QAM  | 12 | 0  | 19.77  | 19.97 | 19.93  | 21                  | 3        |
| 5               | 64QAM  | 12 | 7  | 19.87  | 19.92 | 19.94  |                     |          |
| 5               | 64QAM  | 12 | 13 | 19.98  | 19.94 | 19.96  |                     |          |
| 5               | 64QAM  | 25 | 0  | 20.13  | 19.93 | 19.98  |                     |          |
| 5               | 256QAM | 1  | 0  | 18.59  | 18.70 | 18.73  | 20                  | 4        |
| 5               | 256QAM | 1  | 12 | 18.58  | 18.70 | 18.58  |                     |          |
| 5               | 256QAM | 1  | 24 | 18.62  | 18.52 | 18.70  |                     |          |
| 5               | 256QAM | 12 | 0  | 18.06  | 18.01 | 18.11  | 20                  | 4        |
| 5               | 256QAM | 12 | 7  | 18.20  | 18.16 | 18.22  |                     |          |
| 5               | 256QAM | 12 | 13 | 18.69  | 18.75 | 18.65  |                     |          |
| 5               | 256QAM | 25 | 0  | 18.23  | 18.28 | 18.20  |                     |          |

<LTE Band 12 Main>

| 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         |            |         |           | 23060                 | 23095                    | 23130                  |                     |          |
| Frequency (MHz) |            |         |           | 704                   | 707.5                    | 711                    |                     |          |
| 10              | QPSK       | 1       | 0         | 23.31                 | 23.22                    | 23.05                  | 24.5                | 0        |
| 10              | QPSK       | 1       | 25        | 23.06                 | 23.15                    | 23.01                  |                     |          |
| 10              | QPSK       | 1       | 49        | 23.24                 | 23.12                    | 22.99                  |                     |          |
| 10              | QPSK       | 25      | 0         | 22.69                 | 22.34                    | 22.25                  | 23.5                | 1        |
| 10              | QPSK       | 25      | 12        | 22.41                 | 22.26                    | 22.19                  |                     |          |
| 10              | QPSK       | 25      | 25        | 22.46                 | 22.26                    | 22.00                  |                     |          |
| 10              | QPSK       | 50      | 0         | 22.41                 | 22.25                    | 22.22                  |                     |          |
| 10              | 16QAM      | 1       | 0         | 22.41                 | 22.28                    | 22.65                  | 23.5                | 1        |
| 10              | 16QAM      | 1       | 25        | 22.36                 | 22.94                    | 22.26                  |                     |          |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |    |    |       |       |       |                     |          |
|-----------------|--------|----|----|-------|-------|-------|---------------------|----------|
| 10              | 16QAM  | 1  | 49 | 22.97 | 22.02 | 22.06 |                     |          |
| 10              | 16QAM  | 25 | 0  | 21.25 | 21.12 | 21.20 | 22.5                | 2        |
| 10              | 16QAM  | 25 | 12 | 21.26 | 21.23 | 21.08 |                     |          |
| 10              | 16QAM  | 25 | 25 | 21.38 | 21.16 | 21.08 |                     |          |
| 10              | 16QAM  | 50 | 0  | 21.41 | 21.19 | 21.09 |                     |          |
| 10              | 64QAM  | 1  | 0  | 21.66 | 21.33 | 21.43 | 22.5                | 2        |
| 10              | 64QAM  | 1  | 25 | 21.63 | 21.15 | 21.55 |                     |          |
| 10              | 64QAM  | 1  | 49 | 21.57 | 21.28 | 21.20 |                     |          |
| 10              | 64QAM  | 25 | 0  | 20.37 | 20.20 | 20.19 | 21.5                | 3        |
| 10              | 64QAM  | 25 | 12 | 20.54 | 20.15 | 20.12 |                     |          |
| 10              | 64QAM  | 25 | 25 | 20.32 | 20.21 | 20.17 |                     |          |
| 10              | 64QAM  | 50 | 0  | 20.47 | 20.20 | 20.24 |                     |          |
| 10              | 256QAM | 1  | 0  | 20.17 | 19.92 | 20.00 | 20.5                | 4        |
| 10              | 256QAM | 1  | 25 | 20.23 | 19.74 | 20.15 |                     |          |
| 10              | 256QAM | 1  | 49 | 20.13 | 19.83 | 19.74 |                     |          |
| 10              | 256QAM | 25 | 0  | 18.91 | 18.80 | 18.79 | 20.5                | 4        |
| 10              | 256QAM | 25 | 12 | 19.08 | 18.70 | 18.65 |                     |          |
| 10              | 256QAM | 25 | 25 | 18.90 | 18.74 | 18.74 |                     |          |
| 10              | 256QAM | 50 | 0  | 19.01 | 18.76 | 18.79 |                     |          |
| Channel         |        |    |    | 23035 | 23095 | 23155 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 701.5 | 707.5 | 713.5 |                     |          |
| 5               | QPSK   | 1  | 0  | 23.17 | 22.87 | 23.04 | 24.5                | 0        |
| 5               | QPSK   | 1  | 12 | 23.05 | 23.12 | 22.95 |                     |          |
| 5               | QPSK   | 1  | 24 | 23.28 | 23.20 | 22.95 |                     |          |
| 5               | QPSK   | 12 | 0  | 22.27 | 22.14 | 22.10 | 23.5                | 1        |
| 5               | QPSK   | 12 | 7  | 22.33 | 22.23 | 22.13 |                     |          |
| 5               | QPSK   | 12 | 13 | 22.42 | 22.17 | 21.98 |                     |          |
| 5               | QPSK   | 25 | 0  | 22.34 | 22.24 | 22.22 |                     |          |
| 5               | 16QAM  | 1  | 0  | 22.34 | 22.20 | 22.57 | 23.5                | 1        |
| 5               | 16QAM  | 1  | 12 | 22.36 | 22.85 | 22.23 |                     |          |
| 5               | 16QAM  | 1  | 24 | 22.95 | 21.92 | 21.97 |                     |          |
| 5               | 16QAM  | 12 | 0  | 21.21 | 21.02 | 21.19 |                     |          |
| 5               | 16QAM  | 12 | 7  | 21.17 | 21.21 | 21.01 | 22.5                | 2        |
| 5               | 16QAM  | 12 | 13 | 21.34 | 21.14 | 21.03 |                     |          |
| 5               | 16QAM  | 25 | 0  | 21.34 | 21.09 | 21.05 |                     |          |
| 5               | 64QAM  | 1  | 0  | 21.65 | 21.30 | 21.33 |                     |          |
| 5               | 64QAM  | 1  | 12 | 21.61 | 21.14 | 21.50 | 22.5                | 2        |
| 5               | 64QAM  | 1  | 24 | 21.51 | 21.22 | 21.13 |                     |          |
| 5               | 64QAM  | 12 | 0  | 20.36 | 20.12 | 20.12 |                     |          |
| 5               | 64QAM  | 12 | 7  | 20.44 | 20.07 | 20.05 | 21.5                | 3        |
| 5               | 64QAM  | 12 | 13 | 20.31 | 20.20 | 20.15 |                     |          |
| 5               | 64QAM  | 25 | 0  | 20.37 | 20.16 | 20.17 |                     |          |
| 5               | 256QAM | 1  | 0  | 20.25 | 19.83 | 19.88 |                     |          |
| 5               | 256QAM | 1  | 12 | 20.20 | 19.69 | 20.05 | 20.5                | 4        |
| 5               | 256QAM | 1  | 24 | 20.02 | 19.77 | 19.68 |                     |          |
| 5               | 256QAM | 12 | 0  | 18.93 | 18.62 | 18.72 |                     |          |
| 5               | 256QAM | 12 | 7  | 18.94 | 18.60 | 18.60 | 20.5                | 4        |
| 5               | 256QAM | 12 | 13 | 18.89 | 18.70 | 18.65 |                     |          |
| 5               | 256QAM | 12 | 13 | 18.89 | 18.70 | 18.65 |                     |          |
| 5               | 256QAM | 25 | 0  | 18.97 | 18.66 | 18.74 |                     |          |
| Channel         |        |    |    | 23025 | 23095 | 23165 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 700.5 | 707.5 | 714.5 |                     |          |
| 3               | QPSK   | 1  | 0  | 23.17 | 22.84 | 22.99 | 24.5                | 0        |
| 3               | QPSK   | 1  | 8  | 23.02 | 23.12 | 22.95 |                     |          |
| 3               | QPSK   | 1  | 14 | 23.24 | 23.14 | 22.95 |                     |          |
| 3               | QPSK   | 8  | 0  | 22.23 | 22.08 | 22.04 | 23.5                | 1        |
| 3               | QPSK   | 8  | 4  | 22.33 | 22.20 | 22.13 |                     |          |



|                 |        |    |    |       |       |       |                     |          |
|-----------------|--------|----|----|-------|-------|-------|---------------------|----------|
| 3               | QPSK   | 8  | 7  | 22.37 | 22.14 | 21.98 |                     |          |
| 3               | QPSK   | 15 | 0  | 22.32 | 22.16 | 22.14 |                     |          |
| 3               | 16QAM  | 1  | 0  | 22.33 | 22.12 | 22.52 | 23.5                | 1        |
| 3               | 16QAM  | 1  | 8  | 22.36 | 22.79 | 22.22 |                     |          |
| 3               | 16QAM  | 1  | 14 | 22.95 | 21.92 | 21.91 |                     |          |
| 3               | 16QAM  | 8  | 0  | 21.21 | 21.00 | 21.13 | 22.5                | 2        |
| 3               | 16QAM  | 8  | 4  | 21.10 | 21.13 | 20.91 |                     |          |
| 3               | 16QAM  | 8  | 7  | 21.33 | 21.14 | 20.97 |                     |          |
| 3               | 16QAM  | 15 | 0  | 21.24 | 21.06 | 21.03 |                     |          |
| 3               | 64QAM  | 1  | 0  | 21.64 | 21.25 | 21.25 | 22.5                | 2        |
| 3               | 64QAM  | 1  | 8  | 21.61 | 21.12 | 21.40 |                     |          |
| 3               | 64QAM  | 1  | 14 | 21.48 | 21.22 | 21.07 |                     |          |
| 3               | 64QAM  | 8  | 0  | 20.32 | 20.09 | 20.03 | 21.5                | 3        |
| 3               | 64QAM  | 8  | 4  | 20.40 | 20.01 | 20.00 |                     |          |
| 3               | 64QAM  | 8  | 7  | 20.22 | 20.11 | 20.11 |                     |          |
| 3               | 64QAM  | 15 | 0  | 20.31 | 20.09 | 20.07 |                     |          |
| 3               | 256QAM | 1  | 0  | 20.21 | 19.82 | 19.79 | 20.5                | 4        |
| 3               | 256QAM | 1  | 8  | 20.20 | 19.72 | 19.90 |                     |          |
| 3               | 256QAM | 1  | 14 | 20.03 | 19.82 | 19.67 |                     |          |
| 3               | 256QAM | 8  | 0  | 18.83 | 18.63 | 18.55 | 20.5                | 4        |
| 3               | 256QAM | 8  | 4  | 18.98 | 18.55 | 18.58 |                     |          |
| 3               | 256QAM | 8  | 7  | 18.75 | 18.71 | 18.61 |                     |          |
| 3               | 256QAM | 15 | 0  | 18.81 | 18.64 | 18.59 |                     |          |
| Channel         |        |    |    | 23017 | 23095 | 23173 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 699.7 | 707.5 | 715.3 |                     |          |
| 1.4             | QPSK   | 1  | 0  | 23.16 | 22.81 | 22.92 | 24.5                | 0        |
| 1.4             | QPSK   | 1  | 3  | 23.00 | 23.04 | 22.86 |                     |          |
| 1.4             | QPSK   | 1  | 5  | 23.23 | 23.05 | 22.93 |                     |          |
| 1.4             | QPSK   | 3  | 0  | 23.12 | 22.80 | 22.90 |                     |          |
| 1.4             | QPSK   | 3  | 1  | 22.92 | 22.99 | 22.84 |                     |          |
| 1.4             | QPSK   | 3  | 3  | 23.23 | 22.99 | 22.87 |                     |          |
| 1.4             | QPSK   | 6  | 0  | 22.23 | 22.14 | 22.08 | 23.5                | 1        |
| 1.4             | 16QAM  | 1  | 0  | 22.29 | 22.06 | 22.52 | 23.5                | 1        |
| 1.4             | 16QAM  | 1  | 3  | 22.28 | 22.70 | 22.15 |                     |          |
| 1.4             | 16QAM  | 1  | 5  | 22.93 | 21.83 | 21.90 |                     |          |
| 1.4             | 16QAM  | 3  | 0  | 22.22 | 22.02 | 22.44 |                     |          |
| 1.4             | 16QAM  | 3  | 1  | 22.21 | 22.67 | 22.13 |                     |          |
| 1.4             | 16QAM  | 3  | 3  | 22.87 | 21.73 | 21.83 |                     |          |
| 1.4             | 16QAM  | 6  | 0  | 21.14 | 21.02 | 20.94 | 22.5                | 2        |
| 1.4             | 64QAM  | 1  | 0  | 21.64 | 21.15 | 21.16 | 22.5                | 2        |
| 1.4             | 64QAM  | 1  | 3  | 21.61 | 21.03 | 21.37 |                     |          |
| 1.4             | 64QAM  | 1  | 5  | 21.39 | 21.14 | 20.97 |                     |          |
| 1.4             | 64QAM  | 3  | 0  | 21.56 | 21.12 | 21.14 |                     |          |
| 1.4             | 64QAM  | 3  | 1  | 21.56 | 21.02 | 21.30 |                     |          |
| 1.4             | 64QAM  | 3  | 3  | 21.30 | 21.07 | 20.91 |                     |          |
| 1.4             | 64QAM  | 6  | 0  | 20.29 | 20.07 | 20.07 | 21.5                | 3        |
| 1.4             | 256QAM | 1  | 0  | 20.21 | 19.73 | 19.70 | 20.5                | 4        |
| 1.4             | 256QAM | 1  | 3  | 20.14 | 19.59 | 19.93 |                     |          |
| 1.4             | 256QAM | 1  | 5  | 19.95 | 19.73 | 19.54 |                     |          |
| 1.4             | 256QAM | 3  | 0  | 20.08 | 19.63 | 19.67 |                     |          |
| 1.4             | 256QAM | 3  | 1  | 20.16 | 19.58 | 19.86 |                     |          |
| 1.4             | 256QAM | 3  | 3  | 19.80 | 19.63 | 19.49 |                     |          |
| 1.4             | 256QAM | 6  | 0  | 18.85 | 18.67 | 18.64 | 20.5                | 4        |



**<LTE Band 13 Main>**

| 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         |            |         |           | 23230                 |                          |                        |                     |          |
| Frequency (MHz) |            |         |           | 782                   |                          |                        |                     |          |
| 10              | QPSK       | 1       | 0         |                       | 23.27                    |                        | 24.5                | 0        |
| 10              | QPSK       | 1       | 25        |                       | 23.08                    |                        |                     |          |
| 10              | QPSK       | 1       | 49        |                       | 23.08                    |                        |                     |          |
| 10              | QPSK       | 25      | 0         |                       | 22.35                    |                        | 23.5                | 1        |
| 10              | QPSK       | 25      | 12        |                       | 22.27                    |                        |                     |          |
| 10              | QPSK       | 25      | 25        |                       | 22.25                    |                        |                     |          |
| 10              | QPSK       | 50      | 0         |                       | 22.27                    |                        | 23.5                | 1        |
| 10              | 16QAM      | 1       | 0         |                       | 22.34                    |                        |                     |          |
| 10              | 16QAM      | 1       | 25        |                       | 22.55                    |                        |                     |          |
| 10              | 16QAM      | 1       | 49        |                       | 22.85                    |                        | 22.5                | 2        |
| 10              | 16QAM      | 25      | 0         |                       | 21.42                    |                        |                     |          |
| 10              | 16QAM      | 25      | 12        |                       | 21.27                    |                        |                     |          |
| 10              | 16QAM      | 25      | 25        |                       | 21.31                    |                        | 22.5                | 2        |
| 10              | 16QAM      | 50      | 0         |                       | 21.30                    |                        |                     |          |
| 10              | 64QAM      | 1       | 0         |                       | 21.46                    |                        |                     |          |
| 10              | 64QAM      | 1       | 25        |                       | 21.40                    |                        | 22.5                | 2        |
| 10              | 64QAM      | 1       | 49        |                       | 21.48                    |                        |                     |          |
| 10              | 64QAM      | 25      | 0         |                       | 20.36                    |                        |                     |          |
| 10              | 64QAM      | 25      | 12        |                       | 20.43                    |                        | 21.5                | 3        |
| 10              | 64QAM      | 25      | 25        |                       | 20.40                    |                        |                     |          |
| 10              | 64QAM      | 50      | 0         |                       | 20.31                    |                        |                     |          |
| 10              | 256QAM     | 1       | 0         |                       | 20.02                    |                        | 20.5                | 4        |
| 10              | 256QAM     | 1       | 25        |                       | 19.90                    |                        |                     |          |
| 10              | 256QAM     | 1       | 49        |                       | 20.07                    |                        |                     |          |
| 10              | 256QAM     | 25      | 0         |                       | 18.95                    |                        | 20.5                | 4        |
| 10              | 256QAM     | 25      | 12        |                       | 19.02                    |                        |                     |          |
| 10              | 256QAM     | 25      | 25        |                       | 18.98                    |                        |                     |          |
| 10              | 256QAM     | 50      | 0         |                       | 18.91                    |                        |                     |          |
| Channel         |            |         |           | 23205                 | 23230                    | 23255                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 779.5                 | 782                      | 784.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 23.20                 | 23.26                    | 23.23                  | 24.5                | 0        |
| 5               | QPSK       | 1       | 12        | 23.01                 | 23.02                    | 23.05                  |                     |          |
| 5               | QPSK       | 1       | 24        | 23.04                 | 23.01                    | 23.03                  |                     |          |
| 5               | QPSK       | 12      | 0         | 22.15                 | 22.15                    | 22.17                  | 23.5                | 1        |
| 5               | QPSK       | 12      | 7         | 22.27                 | 22.21                    | 22.19                  |                     |          |
| 5               | QPSK       | 12      | 13        | 22.24                 | 22.22                    | 22.17                  |                     |          |
| 5               | QPSK       | 25      | 0         | 22.22                 | 22.17                    | 22.26                  | 23.5                | 1        |
| 5               | 16QAM      | 1       | 0         | 22.28                 | 22.32                    | 22.24                  |                     |          |
| 5               | 16QAM      | 1       | 12        | 22.47                 | 22.55                    | 22.49                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 22.85                 | 22.75                    | 22.85                  | 22.5                | 2        |
| 5               | 16QAM      | 12      | 0         | 21.38                 | 21.40                    | 21.35                  |                     |          |
| 5               | 16QAM      | 12      | 7         | 21.19                 | 21.19                    | 21.27                  |                     |          |
| 5               | 16QAM      | 12      | 13        | 21.26                 | 21.26                    | 21.26                  | 22.5                | 2        |
| 5               | 16QAM      | 25      | 0         | 21.23                 | 21.27                    | 21.21                  |                     |          |
| 5               | 64QAM      | 1       | 0         | 21.41                 | 21.42                    | 21.41                  |                     |          |
| 5               | 64QAM      | 1       | 12        | 21.36                 | 21.37                    | 21.30                  | 22.5                | 2        |
| 5               | 64QAM      | 1       | 24        | 21.44                 | 21.39                    | 21.38                  |                     |          |
| 5               | 64QAM      | 12      | 0         | 20.31                 | 20.27                    | 20.28                  |                     |          |
| 5               | 64QAM      | 12      | 7         | 20.35                 | 20.34                    | 20.33                  | 21.5                | 3        |
| 5               | 64QAM      | 12      | 13        | 20.35                 | 20.39                    | 20.40                  |                     |          |
| 5               | 64QAM      | 25      | 0         | 20.22                 | 20.30                    | 20.29                  |                     |          |



|   |        |    |    |       |       |       |      |   |
|---|--------|----|----|-------|-------|-------|------|---|
| 5 | 256QAM | 1  | 0  | 19.91 | 19.92 | 19.94 | 20.5 | 4 |
| 5 | 256QAM | 1  | 12 | 19.92 | 19.93 | 19.84 |      |   |
| 5 | 256QAM | 1  | 24 | 20.04 | 19.92 | 19.94 |      |   |
| 5 | 256QAM | 12 | 0  | 18.82 | 18.82 | 18.84 | 20.5 | 4 |
| 5 | 256QAM | 12 | 7  | 18.85 | 18.87 | 18.84 |      |   |
| 5 | 256QAM | 12 | 13 | 18.90 | 18.91 | 18.98 |      |   |
| 5 | 256QAM | 25 | 0  | 18.75 | 18.88 | 18.82 |      |   |

<LTE Band 14 Main>

| 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         |            |         |           | 23330                 |                          |                        | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 793                   |                          |                        |                     |          |
| 10              | QPSK       | 1       | 0         |                       | 22.91                    |                        | 24.5                | 0        |
| 10              | QPSK       | 1       | 25        |                       | 22.87                    |                        |                     |          |
| 10              | QPSK       | 1       | 49        |                       | 22.81                    |                        |                     |          |
| 10              | QPSK       | 25      | 0         |                       | 22.11                    |                        | 23.5                | 1        |
| 10              | QPSK       | 25      | 12        |                       | 22.00                    |                        |                     |          |
| 10              | QPSK       | 25      | 25        |                       | 22.05                    |                        |                     |          |
| 10              | QPSK       | 50      | 0         |                       | 22.02                    |                        | 23.5                | 1        |
| 10              | 16QAM      | 1       | 0         |                       | 22.20                    |                        |                     |          |
| 10              | 16QAM      | 1       | 25        |                       | 21.92                    |                        |                     |          |
| 10              | 16QAM      | 1       | 49        |                       | 22.26                    |                        | 22.5                | 2        |
| 10              | 16QAM      | 25      | 0         |                       | 21.13                    |                        |                     |          |
| 10              | 16QAM      | 25      | 12        |                       | 21.05                    |                        |                     |          |
| 10              | 16QAM      | 25      | 25        |                       | 20.99                    |                        | 21.5                | 3        |
| 10              | 16QAM      | 50      | 0         |                       | 21.08                    |                        |                     |          |
| 10              | 64QAM      | 1       | 0         |                       | 21.32                    |                        |                     |          |
| 10              | 64QAM      | 1       | 25        |                       | 21.19                    |                        | 22.5                | 2        |
| 10              | 64QAM      | 1       | 49        |                       | 21.15                    |                        |                     |          |
| 10              | 64QAM      | 25      | 0         |                       | 20.01                    |                        |                     |          |
| 10              | 64QAM      | 25      | 12        |                       | 20.06                    |                        | 20.5                | 4        |
| 10              | 64QAM      | 25      | 25        |                       | 19.89                    |                        |                     |          |
| 10              | 64QAM      | 50      | 0         |                       | 20.06                    |                        |                     |          |
| 10              | 256QAM     | 1       | 0         |                       | 19.82                    |                        | 20.5                | 4        |
| 10              | 256QAM     | 1       | 25        |                       | 19.73                    |                        |                     |          |
| 10              | 256QAM     | 1       | 49        |                       | 19.73                    |                        |                     |          |
| 10              | 256QAM     | 25      | 0         |                       | 18.57                    |                        | 20.5                | 4        |
| 10              | 256QAM     | 25      | 12        |                       | 18.62                    |                        |                     |          |
| 10              | 256QAM     | 25      | 25        |                       | 18.56                    |                        |                     |          |
| 10              | 256QAM     | 50      | 0         |                       | 18.63                    |                        |                     |          |
| Channel         |            |         |           | 23305                 | 23330                    | 23355                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 790.5                 | 793                      | 795.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 22.83                 | 22.83                    | 22.83                  | 24.5                | 0        |
| 5               | QPSK       | 1       | 12        | 22.82                 | 22.79                    | 22.82                  |                     |          |
| 5               | QPSK       | 1       | 24        | 22.71                 | 22.73                    | 22.77                  |                     |          |
| 5               | QPSK       | 12      | 0         | 21.99                 | 21.99                    | 22.02                  | 23.5                | 1        |
| 5               | QPSK       | 12      | 7         | 21.99                 | 21.96                    | 21.92                  |                     |          |
| 5               | QPSK       | 12      | 13        | 22.03                 | 21.98                    | 22.02                  |                     |          |
| 5               | QPSK       | 25      | 0         | 22.02                 | 21.93                    | 22.00                  | 23.5                | 1        |
| 5               | 16QAM      | 1       | 0         | 22.17                 | 22.15                    | 22.18                  |                     |          |
| 5               | 16QAM      | 1       | 12        | 21.87                 | 21.83                    | 21.85                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 22.16                 | 22.21                    | 22.21                  |                     |          |
| 5               | 16QAM      | 12      | 0         | 21.10                 | 21.08                    | 21.05                  | 22.5                | 2        |



|   |        |    |    |       |       |       |      |   |
|---|--------|----|----|-------|-------|-------|------|---|
| 5 | 16QAM  | 12 | 7  | 21.03 | 20.97 | 20.96 |      |   |
| 5 | 16QAM  | 12 | 13 | 20.96 | 20.94 | 20.89 |      |   |
| 5 | 16QAM  | 25 | 0  | 21.00 | 20.99 | 20.98 |      |   |
| 5 | 64QAM  | 1  | 0  | 21.23 | 21.29 | 21.23 | 22.5 | 2 |
| 5 | 64QAM  | 1  | 12 | 21.12 | 21.11 | 21.09 |      |   |
| 5 | 64QAM  | 1  | 24 | 21.13 | 21.14 | 21.06 |      |   |
| 5 | 64QAM  | 12 | 0  | 19.92 | 20.00 | 19.93 | 21.5 | 3 |
| 5 | 64QAM  | 12 | 7  | 19.97 | 20.00 | 20.03 |      |   |
| 5 | 64QAM  | 12 | 13 | 19.79 | 19.86 | 19.79 |      |   |
| 5 | 64QAM  | 25 | 0  | 20.02 | 19.97 | 20.01 |      |   |
| 5 | 256QAM | 1  | 0  | 19.80 | 19.84 | 19.74 | 20.5 | 4 |
| 5 | 256QAM | 1  | 12 | 19.68 | 19.61 | 19.65 |      |   |
| 5 | 256QAM | 1  | 24 | 19.69 | 19.74 | 19.63 |      |   |
| 5 | 256QAM | 12 | 0  | 18.45 | 18.53 | 18.44 | 20.5 | 4 |
| 5 | 256QAM | 12 | 7  | 18.50 | 18.58 | 18.59 |      |   |
| 5 | 256QAM | 12 | 13 | 18.32 | 18.39 | 18.34 |      |   |
| 5 | 256QAM | 25 | 0  | 18.55 | 18.52 | 18.61 |      |   |

**<LTE Band 17 Main>**

| Channel | 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) |
|---------|----------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
|         |          |            |         |           | 23780                 | 23790                    | 23800                  |                     |          |
|         |          |            |         |           | 709                   | 710                      | 711                    |                     |          |
|         | 10       | QPSK       | 1       | 0         | 23.35                 | 23.07                    | 23.05                  | 24.5                | 0        |
|         | 10       | QPSK       | 1       | 25        | 23.30                 | 23.02                    | 23.01                  |                     |          |
|         | 10       | QPSK       | 1       | 49        | 23.17                 | 23.03                    | 22.88                  |                     |          |
|         | 10       | QPSK       | 25      | 0         | 22.45                 | 22.18                    | 22.15                  | 23.5                | 1        |
|         | 10       | QPSK       | 25      | 12        | 22.29                 | 22.17                    | 22.11                  |                     |          |
|         | 10       | QPSK       | 25      | 25        | 22.36                 | 22.09                    | 22.09                  |                     |          |
|         | 10       | QPSK       | 50      | 0         | 22.30                 | 22.16                    | 22.10                  |                     |          |
|         | 10       | 16QAM      | 1       | 0         | 22.54                 | 22.06                    | 22.67                  | 23.5                | 1        |
|         | 10       | 16QAM      | 1       | 25        | 22.28                 | 22.13                    | 22.50                  |                     |          |
|         | 10       | 16QAM      | 1       | 49        | 22.49                 | 22.18                    | 22.62                  |                     |          |
|         | 10       | 16QAM      | 25      | 0         | 21.33                 | 21.12                    | 21.02                  | 22.5                | 2        |
|         | 10       | 16QAM      | 25      | 12        | 21.30                 | 21.15                    | 21.18                  |                     |          |
|         | 10       | 16QAM      | 25      | 25        | 21.44                 | 21.02                    | 21.04                  |                     |          |
|         | 10       | 16QAM      | 50      | 0         | 21.25                 | 21.09                    | 21.22                  |                     |          |
|         | 10       | 64QAM      | 1       | 0         | 21.87                 | 20.93                    | 21.25                  | 22.5                | 2        |
|         | 10       | 64QAM      | 1       | 25        | 21.70                 | 21.22                    | 21.18                  |                     |          |
|         | 10       | 64QAM      | 1       | 49        | 21.23                 | 20.92                    | 21.21                  |                     |          |
|         | 10       | 64QAM      | 25      | 0         | 20.33                 | 20.15                    | 20.18                  | 21.5                | 3        |
|         | 10       | 64QAM      | 25      | 12        | 20.27                 | 20.25                    | 20.17                  |                     |          |
|         | 10       | 64QAM      | 25      | 25        | 20.39                 | 20.12                    | 19.96                  |                     |          |
|         | 10       | 64QAM      | 50      | 0         | 20.36                 | 20.29                    | 20.16                  |                     |          |
|         | 10       | 256QAM     | 1       | 0         | 20.37                 | 19.52                    | 19.77                  | 20.5                | 4        |
|         | 10       | 256QAM     | 1       | 25        | 20.27                 | 19.76                    | 19.77                  |                     |          |
|         | 10       | 256QAM     | 1       | 49        | 19.83                 | 19.49                    | 19.77                  |                     |          |
|         | 10       | 256QAM     | 25      | 0         | 18.86                 | 18.66                    | 18.68                  | 20.5                | 4        |
|         | 10       | 256QAM     | 25      | 12        | 18.83                 | 18.82                    | 18.69                  |                     |          |
|         | 10       | 256QAM     | 25      | 25        | 18.93                 | 18.64                    | 18.52                  |                     |          |
|         | 10       | 256QAM     | 50      | 0         | 18.90                 | 18.86                    | 18.69                  |                     |          |
|         |          |            |         |           | 23755                 | 23790                    | 23825                  |                     |          |
|         |          |            |         |           | 706.5                 | 710                      | 713.5                  |                     |          |
|         | 5        | QPSK       | 1       | 0         | 23.33                 | 23.00                    | 23.04                  | 24.5                | 0        |





|   |        |    |    |       |       |       |      |   |
|---|--------|----|----|-------|-------|-------|------|---|
| 5 | QPSK   | 1  | 12 | 23.23 | 22.95 | 22.98 | 23.5 | 1 |
| 5 | QPSK   | 1  | 24 | 23.12 | 22.96 | 22.82 |      |   |
| 5 | QPSK   | 12 | 0  | 22.31 | 22.07 | 22.00 |      |   |
| 5 | QPSK   | 12 | 7  | 22.27 | 22.08 | 22.03 |      |   |
| 5 | QPSK   | 12 | 13 | 22.28 | 22.04 | 21.99 |      |   |
| 5 | QPSK   | 25 | 0  | 22.30 | 22.10 | 22.00 | 23.5 | 1 |
| 5 | 16QAM  | 1  | 0  | 22.54 | 22.00 | 22.66 |      |   |
| 5 | 16QAM  | 1  | 12 | 22.23 | 22.13 | 22.46 |      |   |
| 5 | 16QAM  | 1  | 24 | 22.43 | 22.16 | 22.53 | 22.5 | 2 |
| 5 | 16QAM  | 12 | 0  | 21.23 | 21.08 | 20.99 |      |   |
| 5 | 16QAM  | 12 | 7  | 21.23 | 21.09 | 21.18 |      |   |
| 5 | 16QAM  | 12 | 13 | 21.42 | 20.99 | 21.03 |      |   |
| 5 | 16QAM  | 25 | 0  | 21.17 | 21.02 | 21.19 |      |   |
| 5 | 64QAM  | 1  | 0  | 21.79 | 20.86 | 21.22 | 22.5 | 2 |
| 5 | 64QAM  | 1  | 12 | 21.68 | 21.22 | 21.10 |      |   |
| 5 | 64QAM  | 1  | 24 | 21.15 | 20.92 | 21.15 |      |   |
| 5 | 64QAM  | 12 | 0  | 20.33 | 20.08 | 20.09 | 21.5 | 3 |
| 5 | 64QAM  | 12 | 7  | 20.21 | 20.24 | 20.08 |      |   |
| 5 | 64QAM  | 12 | 13 | 20.38 | 20.11 | 19.94 |      |   |
| 5 | 64QAM  | 25 | 0  | 20.36 | 20.22 | 20.14 |      |   |
| 5 | 256QAM | 1  | 0  | 20.32 | 19.43 | 19.73 |      |   |
| 5 | 256QAM | 1  | 12 | 20.18 | 19.78 | 19.65 | 20.5 | 4 |
| 5 | 256QAM | 1  | 24 | 19.69 | 19.45 | 19.70 |      |   |
| 5 | 256QAM | 12 | 0  | 18.83 | 18.60 | 18.68 |      |   |
| 5 | 256QAM | 12 | 7  | 18.79 | 18.75 | 18.64 | 20.5 | 4 |
| 5 | 256QAM | 12 | 13 | 18.91 | 18.69 | 18.58 |      |   |
| 5 | 256QAM | 25 | 0  | 18.96 | 18.77 | 18.66 |      |   |

<LTE Band 25 Main>

| 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         | 22.78                 | 22.89                    | 22.91                  | 24                  | 0        |
| 20              | QPSK       | 1       | 49        | 22.70                 | 22.78                    | 22.65                  |                     |          |
| 20              | QPSK       | 1       | 99        | 22.59                 | 22.85                    | 22.74                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.01                 | 22.08                    | 22.09                  | 23                  | 1        |
| 20              | QPSK       | 50      | 24        | 21.96                 | 22.08                    | 21.97                  |                     |          |
| 20              | QPSK       | 50      | 50        | 21.86                 | 22.06                    | 21.95                  |                     |          |
| 20              | QPSK       | 100     | 0         | 21.99                 | 21.91                    | 21.93                  |                     |          |
| 20              | 16QAM      | 1       | 0         | 22.53                 | 22.48                    | 22.52                  | 23                  | 1        |
| 20              | 16QAM      | 1       | 49        | 22.43                 | 22.09                    | 21.93                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 22.32                 | 21.87                    | 21.63                  |                     |          |
| 20              | 16QAM      | 50      | 0         | 20.93                 | 20.97                    | 20.95                  | 22                  | 2        |
| 20              | 16QAM      | 50      | 24        | 21.01                 | 20.96                    | 20.93                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 20.85                 | 21.06                    | 20.93                  |                     |          |
| 20              | 16QAM      | 100     | 0         | 20.96                 | 20.86                    | 20.97                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 20.88                 | 21.21                    | 21.10                  | 22                  | 2        |
| 20              | 64QAM      | 1       | 49        | 21.20                 | 20.83                    | 21.14                  |                     |          |
| 20              | 64QAM      | 1       | 99        | 21.18                 | 21.12                    | 20.54                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 19.89                 | 20.04                    | 20.02                  | 21                  | 3        |
| 20              | 64QAM      | 50      | 24        | 19.92                 | 19.98                    | 19.94                  |                     |          |
| 20              | 64QAM      | 50      | 50        | 19.92                 | 20.09                    | 19.88                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 19.94                 | 20.08                    | 19.99                  |                     |          |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |     |    |        |       |        |                     |          |
|-----------------|--------|-----|----|--------|-------|--------|---------------------|----------|
| 20              | 256QAM | 1   | 0  | 19.47  | 19.76 | 19.69  | 20                  | 4        |
| 20              | 256QAM | 1   | 49 | 19.70  | 19.40 | 19.64  |                     |          |
| 20              | 256QAM | 1   | 99 | 19.70  | 19.65 | 19.07  |                     |          |
| 20              | 256QAM | 50  | 0  | 18.43  | 18.61 | 18.53  | 20                  | 4        |
| 20              | 256QAM | 50  | 24 | 18.49  | 18.49 | 18.51  |                     |          |
| 20              | 256QAM | 50  | 50 | 18.45  | 18.69 | 18.45  |                     |          |
| 20              | 256QAM | 100 | 0  | 18.48  | 18.59 | 18.50  |                     |          |
| Channel         |        |     |    | 26115  | 26340 | 26615  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |     |    | 1857.5 | 1880  | 1907.5 |                     |          |
| 15              | QPSK   | 1   | 0  | 22.74  | 22.86 | 22.82  | 24                  | 0        |
| 15              | QPSK   | 1   | 37 | 22.60  | 22.75 | 22.58  |                     |          |
| 15              | QPSK   | 1   | 74 | 22.53  | 22.82 | 22.64  |                     |          |
| 15              | QPSK   | 36  | 0  | 21.85  | 21.93 | 21.84  | 23                  | 1        |
| 15              | QPSK   | 36  | 20 | 21.89  | 22.00 | 21.88  |                     |          |
| 15              | QPSK   | 36  | 39 | 21.80  | 22.06 | 21.88  |                     |          |
| 15              | QPSK   | 75  | 0  | 21.98  | 21.87 | 21.86  |                     |          |
| 15              | 16QAM  | 1   | 0  | 22.43  | 22.39 | 22.42  | 23                  | 1        |
| 15              | 16QAM  | 1   | 37 | 22.41  | 22.01 | 21.85  |                     |          |
| 15              | 16QAM  | 1   | 74 | 22.28  | 21.78 | 21.56  |                     |          |
| 15              | 16QAM  | 36  | 0  | 20.83  | 20.93 | 20.86  | 22                  | 2        |
| 15              | 16QAM  | 36  | 20 | 20.92  | 20.86 | 20.90  |                     |          |
| 15              | 16QAM  | 36  | 39 | 20.77  | 20.97 | 20.84  |                     |          |
| 15              | 16QAM  | 75  | 0  | 20.88  | 20.80 | 20.97  |                     |          |
| 15              | 64QAM  | 1   | 0  | 20.80  | 21.14 | 21.04  | 22                  | 2        |
| 15              | 64QAM  | 1   | 37 | 21.15  | 20.76 | 21.04  |                     |          |
| 15              | 64QAM  | 1   | 74 | 21.12  | 21.05 | 20.49  |                     |          |
| 15              | 64QAM  | 36  | 0  | 19.83  | 19.99 | 19.94  | 21                  | 3        |
| 15              | 64QAM  | 36  | 20 | 19.85  | 19.97 | 19.86  |                     |          |
| 15              | 64QAM  | 36  | 39 | 19.89  | 20.03 | 19.87  |                     |          |
| 15              | 64QAM  | 75  | 0  | 19.93  | 20.03 | 19.91  |                     |          |
| 15              | 256QAM | 1   | 0  | 19.32  | 19.65 | 19.61  | 20                  | 4        |
| 15              | 256QAM | 1   | 37 | 19.70  | 19.27 | 19.54  |                     |          |
| 15              | 256QAM | 1   | 74 | 19.64  | 19.57 | 19.05  |                     |          |
| 15              | 256QAM | 36  | 0  | 18.42  | 18.58 | 18.54  | 20                  | 4        |
| 15              | 256QAM | 36  | 20 | 18.45  | 18.48 | 18.44  |                     |          |
| 15              | 256QAM | 36  | 39 | 18.49  | 18.59 | 18.44  |                     |          |
| 15              | 256QAM | 75  | 0  | 18.52  | 18.60 | 18.48  |                     |          |
| Channel         |        |     |    | 26090  | 26340 | 26640  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |     |    | 1855   | 1880  | 1910   |                     |          |
| 10              | QPSK   | 1   | 0  | 22.67  | 22.85 | 22.78  | 24                  | 0        |
| 10              | QPSK   | 1   | 25 | 22.52  | 22.73 | 22.50  |                     |          |
| 10              | QPSK   | 1   | 49 | 22.48  | 22.79 | 22.57  |                     |          |
| 10              | QPSK   | 25  | 0  | 21.77  | 21.93 | 21.77  | 23                  | 1        |
| 10              | QPSK   | 25  | 12 | 21.88  | 21.94 | 21.81  |                     |          |
| 10              | QPSK   | 25  | 25 | 21.79  | 22.05 | 21.78  |                     |          |
| 10              | QPSK   | 50  | 0  | 21.96  | 21.84 | 21.77  |                     |          |
| 10              | 16QAM  | 1   | 0  | 22.41  | 22.30 | 22.33  | 23                  | 1        |
| 10              | 16QAM  | 1   | 25 | 22.37  | 21.92 | 21.75  |                     |          |
| 10              | 16QAM  | 1   | 49 | 22.22  | 21.74 | 21.48  |                     |          |
| 10              | 16QAM  | 25  | 0  | 20.76  | 20.91 | 20.76  | 22                  | 2        |
| 10              | 16QAM  | 25  | 12 | 20.82  | 20.78 | 20.83  |                     |          |
| 10              | 16QAM  | 25  | 25 | 20.74  | 20.94 | 20.74  |                     |          |
| 10              | 16QAM  | 50  | 0  | 20.88  | 20.71 | 20.97  |                     |          |
| 10              | 64QAM  | 1   | 0  | 20.76  | 21.07 | 21.01  | 22                  | 2        |
| 10              | 64QAM  | 1   | 25 | 21.08  | 20.75 | 20.94  |                     |          |
| 10              | 64QAM  | 1   | 49 | 21.09  | 20.96 | 20.46  |                     |          |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |    |    |        |       |        |         |      |
|-----------------|--------|----|----|--------|-------|--------|---------|------|
| 10              | 64QAM  | 25 | 0  | 19.80  | 19.95 | 19.84  | 21      | 3    |
| 10              | 64QAM  | 25 | 12 | 19.79  | 19.88 | 19.81  |         |      |
| 10              | 64QAM  | 25 | 25 | 19.87  | 19.93 | 19.80  |         |      |
| 10              | 64QAM  | 50 | 0  | 19.93  | 19.99 | 19.88  | 20      | 4    |
| 10              | 256QAM | 1  | 0  | 19.26  | 19.64 | 19.57  |         |      |
| 10              | 256QAM | 1  | 25 | 19.59  | 19.28 | 19.45  |         |      |
| 10              | 256QAM | 1  | 49 | 19.66  | 19.54 | 19.03  | 20      | 4    |
| 10              | 256QAM | 25 | 0  | 18.38  | 18.50 | 18.42  |         |      |
| 10              | 256QAM | 25 | 12 | 18.32  | 18.44 | 18.41  |         |      |
| 10              | 256QAM | 25 | 25 | 18.41  | 18.46 | 18.39  |         |      |
| 10              | 256QAM | 50 | 0  | 18.44  | 18.49 | 18.47  | Channel | MPR  |
| Channel         |        |    |    | 26065  | 26340 | 26665  |         |      |
| Frequency (MHz) |        |    |    | 1852.5 | 1880  | 1912.5 |         | (dB) |
| 5               | QPSK   | 1  | 0  | 22.64  | 22.82 | 22.74  | 24      | 0    |
| 5               | QPSK   | 1  | 12 | 22.50  | 22.73 | 22.43  |         |      |
| 5               | QPSK   | 1  | 24 | 22.45  | 22.74 | 22.57  |         |      |
| 5               | QPSK   | 12 | 0  | 21.71  | 21.87 | 21.70  | 23      | 1    |
| 5               | QPSK   | 12 | 7  | 21.80  | 21.93 | 21.74  |         |      |
| 5               | QPSK   | 12 | 13 | 21.79  | 22.04 | 21.78  |         |      |
| 5               | QPSK   | 25 | 0  | 21.91  | 21.81 | 21.76  | 23      | 1    |
| 5               | 16QAM  | 1  | 0  | 22.31  | 22.26 | 22.23  |         |      |
| 5               | 16QAM  | 1  | 12 | 22.29  | 21.85 | 21.70  |         |      |
| 5               | 16QAM  | 1  | 24 | 22.13  | 21.72 | 21.39  | 22      | 2    |
| 5               | 16QAM  | 12 | 0  | 20.76  | 20.90 | 20.68  |         |      |
| 5               | 16QAM  | 12 | 7  | 20.72  | 20.69 | 20.73  |         |      |
| 5               | 16QAM  | 12 | 13 | 20.70  | 20.94 | 20.66  | 22      | 2    |
| 5               | 16QAM  | 25 | 0  | 20.79  | 20.61 | 20.91  |         |      |
| 5               | 64QAM  | 1  | 0  | 20.71  | 21.01 | 20.94  |         |      |
| 5               | 64QAM  | 1  | 12 | 20.99  | 20.67 | 20.88  | 21      | 3    |
| 5               | 64QAM  | 1  | 24 | 21.04  | 20.89 | 20.39  |         |      |
| 5               | 64QAM  | 12 | 0  | 19.80  | 19.88 | 19.74  |         |      |
| 5               | 64QAM  | 12 | 7  | 19.78  | 19.84 | 19.79  | 20      | 4    |
| 5               | 64QAM  | 12 | 13 | 19.79  | 19.90 | 19.80  |         |      |
| 5               | 64QAM  | 25 | 0  | 19.88  | 19.91 | 19.85  |         |      |
| 5               | 256QAM | 1  | 0  | 19.31  | 19.51 | 19.49  | 20      | 4    |
| 5               | 256QAM | 1  | 12 | 19.55  | 19.24 | 19.45  |         |      |
| 5               | 256QAM | 1  | 24 | 19.56  | 19.46 | 18.98  |         |      |
| 5               | 256QAM | 12 | 0  | 18.34  | 18.47 | 18.24  | 20      | 4    |
| 5               | 256QAM | 12 | 7  | 18.30  | 18.39 | 18.30  |         |      |
| 5               | 256QAM | 12 | 13 | 18.34  | 18.48 | 18.35  |         |      |
| 5               | 256QAM | 25 | 0  | 18.47  | 18.49 | 18.41  | Channel | MPR  |
| Channel         |        |    |    | 26055  | 26340 | 26675  |         |      |
| Frequency (MHz) |        |    |    | 1851.5 | 1880  | 1913.5 |         | (dB) |
| 3               | QPSK   | 1  | 0  | 22.57  | 22.78 | 22.73  | 24      | 0    |
| 3               | QPSK   | 1  | 8  | 22.46  | 22.64 | 22.38  |         |      |
| 3               | QPSK   | 1  | 14 | 22.40  | 22.70 | 22.51  |         |      |
| 3               | QPSK   | 8  | 0  | 21.62  | 21.83 | 21.60  | 23      | 1    |
| 3               | QPSK   | 8  | 4  | 21.75  | 21.88 | 21.66  |         |      |
| 3               | QPSK   | 8  | 7  | 21.73  | 22.04 | 21.72  |         |      |
| 3               | QPSK   | 15 | 0  | 21.89  | 21.77 | 21.69  | 23      | 1    |
| 3               | 16QAM  | 1  | 0  | 22.24  | 22.22 | 22.15  |         |      |
| 3               | 16QAM  | 1  | 8  | 22.21  | 21.79 | 21.67  |         |      |
| 3               | 16QAM  | 1  | 14 | 22.06  | 21.70 | 21.39  | 22      | 2    |
| 3               | 16QAM  | 8  | 0  | 20.69  | 20.90 | 20.58  |         |      |
| 3               | 16QAM  | 8  | 4  | 20.69  | 20.65 | 20.63  |         |      |
| 3               | 16QAM  | 8  | 7  | 20.67  | 20.86 | 20.65  |         |      |



|                 |        |    |    |        |       |        |                     |          |
|-----------------|--------|----|----|--------|-------|--------|---------------------|----------|
| 3               | 16QAM  | 15 | 0  | 20.74  | 20.54 | 20.81  |                     |          |
| 3               | 64QAM  | 1  | 0  | 20.67  | 20.93 | 20.90  | 22                  | 2        |
| 3               | 64QAM  | 1  | 8  | 20.89  | 20.61 | 20.86  |                     |          |
| 3               | 64QAM  | 1  | 14 | 20.94  | 20.88 | 20.29  |                     |          |
| 3               | 64QAM  | 8  | 0  | 19.79  | 19.87 | 19.72  | 21                  | 3        |
| 3               | 64QAM  | 8  | 4  | 19.77  | 19.79 | 19.78  |                     |          |
| 3               | 64QAM  | 8  | 7  | 19.69  | 19.87 | 19.79  |                     |          |
| 3               | 64QAM  | 15 | 0  | 19.85  | 19.86 | 19.84  | 20                  | 4        |
| 3               | 256QAM | 1  | 0  | 19.23  | 19.46 | 19.41  |                     |          |
| 3               | 256QAM | 1  | 8  | 19.41  | 19.20 | 19.40  |                     |          |
| 3               | 256QAM | 1  | 14 | 19.54  | 19.39 | 18.85  | 20                  | 4        |
| 3               | 256QAM | 8  | 0  | 18.38  | 18.47 | 18.31  |                     |          |
| 3               | 256QAM | 8  | 4  | 18.27  | 18.34 | 18.37  |                     |          |
| 3               | 256QAM | 8  | 7  | 18.26  | 18.45 | 18.31  |                     |          |
| 3               | 256QAM | 15 | 0  | 18.35  | 18.38 | 18.37  |                     |          |
| Channel         |        |    |    | 26047  | 26340 | 26683  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 1850.7 | 1880  | 1914.3 |                     |          |
| 1.4             | QPSK   | 1  | 0  | 22.47  | 22.69 | 22.69  | 24                  | 0        |
| 1.4             | QPSK   | 1  | 3  | 22.37  | 22.63 | 22.30  |                     |          |
| 1.4             | QPSK   | 1  | 5  | 22.39  | 22.66 | 22.42  |                     |          |
| 1.4             | QPSK   | 3  | 0  | 22.56  | 22.77 | 22.67  |                     |          |
| 1.4             | QPSK   | 3  | 1  | 22.39  | 22.56 | 22.34  |                     |          |
| 1.4             | QPSK   | 3  | 3  | 22.31  | 22.61 | 22.42  |                     |          |
| 1.4             | QPSK   | 6  | 0  | 21.80  | 21.75 | 21.64  | 23                  | 1        |
| 1.4             | 16QAM  | 1  | 0  | 22.20  | 22.17 | 22.05  | 23                  | 1        |
| 1.4             | 16QAM  | 1  | 3  | 22.19  | 21.75 | 21.61  |                     |          |
| 1.4             | 16QAM  | 1  | 5  | 22.00  | 21.65 | 21.29  |                     |          |
| 1.4             | 16QAM  | 3  | 0  | 22.23  | 22.14 | 22.11  |                     |          |
| 1.4             | 16QAM  | 3  | 1  | 22.14  | 21.73 | 21.64  |                     |          |
| 1.4             | 16QAM  | 3  | 3  | 21.98  | 21.66 | 21.38  |                     |          |
| 1.4             | 16QAM  | 6  | 0  | 20.74  | 20.52 | 20.81  | 22                  | 2        |
| 1.4             | 64QAM  | 1  | 0  | 20.60  | 20.91 | 20.88  | 22                  | 2        |
| 1.4             | 64QAM  | 1  | 3  | 20.83  | 20.53 | 20.78  |                     |          |
| 1.4             | 64QAM  | 1  | 5  | 20.88  | 20.88 | 20.23  |                     |          |
| 1.4             | 64QAM  | 3  | 0  | 20.65  | 20.85 | 20.82  |                     |          |
| 1.4             | 64QAM  | 3  | 1  | 20.84  | 20.59 | 20.81  |                     |          |
| 1.4             | 64QAM  | 3  | 3  | 20.87  | 20.79 | 20.25  |                     |          |
| 1.4             | 64QAM  | 6  | 0  | 19.80  | 19.84 | 19.77  | 21                  | 3        |
| 1.4             | 256QAM | 1  | 0  | 19.18  | 19.49 | 19.47  | 20                  | 4        |
| 1.4             | 256QAM | 1  | 3  | 19.33  | 19.06 | 19.35  |                     |          |
| 1.4             | 256QAM | 1  | 5  | 19.48  | 19.48 | 18.78  |                     |          |
| 1.4             | 256QAM | 3  | 0  | 19.18  | 19.39 | 19.42  |                     |          |
| 1.4             | 256QAM | 3  | 1  | 19.39  | 19.13 | 19.32  |                     |          |
| 1.4             | 256QAM | 3  | 3  | 19.47  | 19.32 | 18.81  |                     |          |
| 1.4             | 256QAM | 6  | 0  | 18.31  | 18.38 | 18.37  | 20                  | 4        |

<LTE Band 26 Main>

| 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         | 23.26                 | 23.15                    | 23.31                  | 24.5                | 0        |
| 15              | QPSK       | 1       | 37        | 23.15                 | 23.24                    | 23.28                  |                     |          |
| 15              | QPSK       | 1       | 74        | 23.28                 | 23.20                    | 22.80                  |                     |          |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |    |    |       |       |       |                     |          |
|-----------------|--------|----|----|-------|-------|-------|---------------------|----------|
| 15              | QPSK   | 36 | 0  | 22.48 | 22.47 | 22.60 | 23.5                | 1        |
| 15              | QPSK   | 36 | 20 | 22.43 | 22.42 | 22.38 |                     |          |
| 15              | QPSK   | 36 | 39 | 22.23 | 22.35 | 22.23 |                     |          |
| 15              | QPSK   | 75 | 0  | 22.35 | 22.33 | 22.32 | 23.5                | 1        |
| 15              | 16QAM  | 1  | 0  | 22.68 | 22.52 | 22.52 |                     |          |
| 15              | 16QAM  | 1  | 37 | 22.56 | 22.87 | 22.49 |                     |          |
| 15              | 16QAM  | 1  | 74 | 22.52 | 22.40 | 21.98 | 22.5                | 2        |
| 15              | 16QAM  | 36 | 0  | 21.35 | 21.42 | 21.41 |                     |          |
| 15              | 16QAM  | 36 | 20 | 21.40 | 21.47 | 21.36 |                     |          |
| 15              | 16QAM  | 36 | 39 | 21.31 | 21.47 | 21.25 | 22.5                | 2        |
| 15              | 16QAM  | 75 | 0  | 21.48 | 21.38 | 21.28 |                     |          |
| 15              | 64QAM  | 1  | 0  | 21.55 | 21.21 | 21.56 |                     |          |
| 15              | 64QAM  | 1  | 37 | 21.47 | 21.52 | 21.41 | 21.5                | 3        |
| 15              | 64QAM  | 1  | 74 | 21.38 | 21.63 | 20.75 |                     |          |
| 15              | 64QAM  | 36 | 0  | 20.21 | 20.49 | 20.35 |                     |          |
| 15              | 64QAM  | 36 | 20 | 20.33 | 20.51 | 20.53 | 20.5                | 4        |
| 15              | 64QAM  | 36 | 39 | 20.35 | 20.35 | 20.18 |                     |          |
| 15              | 64QAM  | 75 | 0  | 20.38 | 20.35 | 20.29 |                     |          |
| 15              | 256QAM | 1  | 0  | 20.14 | 19.80 | 20.15 | 20.5                | 4        |
| 15              | 256QAM | 1  | 37 | 20.00 | 20.10 | 19.95 |                     |          |
| 15              | 256QAM | 1  | 74 | 19.94 | 20.13 | 19.30 |                     |          |
| 15              | 256QAM | 36 | 0  | 18.76 | 19.06 | 18.94 | 20.5                | 4        |
| 15              | 256QAM | 36 | 20 | 18.86 | 19.07 | 19.13 |                     |          |
| 15              | 256QAM | 36 | 39 | 18.93 | 18.95 | 18.70 |                     |          |
| 15              | 256QAM | 75 | 0  | 18.89 | 18.91 | 18.79 |                     |          |
| Channel         |        |    |    | 26740 | 26865 | 26990 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 819   | 831.5 | 844   |                     |          |
| 10              | QPSK   | 1  | 0  | 23.16 | 23.14 | 23.24 | 24.5                | 0        |
| 10              | QPSK   | 1  | 25 | 23.09 | 23.23 | 23.27 |                     |          |
| 10              | QPSK   | 1  | 49 | 23.24 | 23.10 | 22.74 |                     |          |
| 10              | QPSK   | 25 | 0  | 22.30 | 22.37 | 22.32 | 23.5                | 1        |
| 10              | QPSK   | 25 | 12 | 22.37 | 22.36 | 22.31 |                     |          |
| 10              | QPSK   | 25 | 25 | 22.22 | 22.25 | 22.22 |                     |          |
| 10              | QPSK   | 50 | 0  | 22.27 | 22.26 | 22.24 | 23.5                | 1        |
| 10              | 16QAM  | 1  | 0  | 22.60 | 22.45 | 22.43 |                     |          |
| 10              | 16QAM  | 1  | 25 | 22.46 | 22.86 | 22.42 |                     |          |
| 10              | 16QAM  | 1  | 49 | 22.46 | 22.33 | 21.88 | 22.5                | 2        |
| 10              | 16QAM  | 25 | 0  | 21.35 | 21.38 | 21.40 |                     |          |
| 10              | 16QAM  | 25 | 12 | 21.37 | 21.39 | 21.29 |                     |          |
| 10              | 16QAM  | 25 | 25 | 21.23 | 21.44 | 21.23 | 22.5                | 2        |
| 10              | 16QAM  | 50 | 0  | 21.43 | 21.38 | 21.23 |                     |          |
| 10              | 64QAM  | 1  | 0  | 21.51 | 21.14 | 21.55 |                     |          |
| 10              | 64QAM  | 1  | 25 | 21.37 | 21.51 | 21.37 | 22.5                | 2        |
| 10              | 64QAM  | 1  | 49 | 21.36 | 21.58 | 20.66 |                     |          |
| 10              | 64QAM  | 25 | 0  | 20.11 | 20.39 | 20.29 |                     |          |
| 10              | 64QAM  | 25 | 12 | 20.24 | 20.45 | 20.43 | 21.5                | 3        |
| 10              | 64QAM  | 25 | 25 | 20.29 | 20.29 | 20.17 |                     |          |
| 10              | 64QAM  | 50 | 0  | 20.29 | 20.33 | 20.28 |                     |          |
| 10              | 256QAM | 1  | 0  | 20.10 | 19.74 | 20.10 | 20.5                | 4        |
| 10              | 256QAM | 1  | 25 | 19.87 | 20.02 | 19.93 |                     |          |
| 10              | 256QAM | 1  | 49 | 19.96 | 20.11 | 19.26 |                     |          |
| 10              | 256QAM | 25 | 0  | 18.69 | 18.93 | 18.82 | 20.5                | 4        |
| 10              | 256QAM | 25 | 12 | 18.78 | 18.95 | 19.01 |                     |          |
| 10              | 256QAM | 25 | 25 | 18.84 | 18.80 | 18.75 |                     |          |
| 10              | 256QAM | 50 | 0  | 18.88 | 18.87 | 18.83 |                     |          |
| Channel         |        |    |    | 26715 | 26865 | 27015 | Tune-up limit       | MPR      |



| Frequency (MHz) |        |    |    | 816.5 | 831.5 | 846.5 | (dBm)               | (dB)     |
|-----------------|--------|----|----|-------|-------|-------|---------------------|----------|
| 5               | QPSK   | 1  | 0  | 23.09 | 23.11 | 23.15 | 24.5                | 0        |
| 5               | QPSK   | 1  | 12 | 23.01 | 23.18 | 23.23 |                     |          |
| 5               | QPSK   | 1  | 24 | 23.18 | 23.10 | 22.65 |                     |          |
| 5               | QPSK   | 12 | 0  | 22.21 | 22.30 | 22.22 | 23.5                | 1        |
| 5               | QPSK   | 12 | 7  | 22.30 | 22.36 | 22.30 |                     |          |
| 5               | QPSK   | 12 | 13 | 22.13 | 22.17 | 22.18 |                     |          |
| 5               | QPSK   | 25 | 0  | 22.27 | 22.20 | 22.24 | 23.5                | 1        |
| 5               | 16QAM  | 1  | 0  | 22.59 | 22.43 | 22.39 |                     |          |
| 5               | 16QAM  | 1  | 12 | 22.36 | 22.81 | 22.33 |                     |          |
| 5               | 16QAM  | 1  | 24 | 22.41 | 22.31 | 21.81 | 22.5                | 2        |
| 5               | 16QAM  | 12 | 0  | 21.35 | 21.31 | 21.33 |                     |          |
| 5               | 16QAM  | 12 | 7  | 21.35 | 21.34 | 21.28 |                     |          |
| 5               | 16QAM  | 12 | 13 | 21.20 | 21.40 | 21.15 | 22.5                | 2        |
| 5               | 16QAM  | 25 | 0  | 21.35 | 21.34 | 21.17 |                     |          |
| 5               | 64QAM  | 1  | 0  | 21.49 | 21.07 | 21.47 |                     |          |
| 5               | 64QAM  | 1  | 12 | 21.35 | 21.51 | 21.32 | 22.5                | 2        |
| 5               | 64QAM  | 1  | 24 | 21.30 | 21.54 | 20.61 |                     |          |
| 5               | 64QAM  | 12 | 0  | 20.11 | 20.30 | 20.25 |                     |          |
| 5               | 64QAM  | 12 | 7  | 20.15 | 20.43 | 20.35 | 21.5                | 3        |
| 5               | 64QAM  | 12 | 13 | 20.22 | 20.28 | 20.07 |                     |          |
| 5               | 64QAM  | 25 | 0  | 20.23 | 20.28 | 20.22 |                     |          |
| 5               | 256QAM | 1  | 0  | 20.01 | 19.60 | 20.02 | 20.5                | 4        |
| 5               | 256QAM | 1  | 12 | 19.85 | 20.11 | 19.90 |                     |          |
| 5               | 256QAM | 1  | 24 | 19.90 | 20.05 | 19.18 |                     |          |
| 5               | 256QAM | 12 | 0  | 18.69 | 18.88 | 18.77 | 20.5                | 4        |
| 5               | 256QAM | 12 | 7  | 18.70 | 18.97 | 18.87 |                     |          |
| 5               | 256QAM | 12 | 13 | 18.79 | 18.88 | 18.63 |                     |          |
| 5               | 256QAM | 25 | 0  | 18.78 | 18.86 | 18.82 |                     |          |
| Channel         |        |    |    | 26705 | 26865 | 27025 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 815.5 | 831.5 | 847.5 |                     |          |
| 3               | QPSK   | 1  | 0  | 22.99 | 23.06 | 23.08 | 24.5                | 0        |
| 3               | QPSK   | 1  | 8  | 22.91 | 23.17 | 23.16 |                     |          |
| 3               | QPSK   | 1  | 14 | 23.11 | 23.06 | 22.55 |                     |          |
| 3               | QPSK   | 8  | 0  | 22.19 | 22.22 | 22.13 | 23.5                | 1        |
| 3               | QPSK   | 8  | 4  | 22.25 | 22.36 | 22.29 |                     |          |
| 3               | QPSK   | 8  | 7  | 22.12 | 22.17 | 22.10 |                     |          |
| 3               | QPSK   | 15 | 0  | 22.26 | 22.15 | 22.16 | 23.5                | 1        |
| 3               | 16QAM  | 1  | 0  | 22.58 | 22.41 | 22.39 |                     |          |
| 3               | 16QAM  | 1  | 8  | 22.29 | 22.81 | 22.26 |                     |          |
| 3               | 16QAM  | 1  | 14 | 22.34 | 22.24 | 21.77 | 22.5                | 2        |
| 3               | 16QAM  | 8  | 0  | 21.33 | 21.31 | 21.28 |                     |          |
| 3               | 16QAM  | 8  | 4  | 21.30 | 21.30 | 21.22 |                     |          |
| 3               | 16QAM  | 8  | 7  | 21.10 | 21.36 | 21.10 | 22.5                | 2        |
| 3               | 16QAM  | 15 | 0  | 21.26 | 21.30 | 21.09 |                     |          |
| 3               | 64QAM  | 1  | 0  | 21.40 | 21.02 | 21.38 |                     |          |
| 3               | 64QAM  | 1  | 8  | 21.35 | 21.42 | 21.32 | 22.5                | 2        |
| 3               | 64QAM  | 1  | 14 | 21.20 | 21.49 | 20.54 |                     |          |
| 3               | 64QAM  | 8  | 0  | 20.11 | 20.23 | 20.16 |                     |          |
| 3               | 64QAM  | 8  | 4  | 20.07 | 20.33 | 20.26 | 21.5                | 3        |
| 3               | 64QAM  | 8  | 7  | 20.15 | 20.21 | 20.02 |                     |          |
| 3               | 64QAM  | 15 | 0  | 20.20 | 20.25 | 20.18 |                     |          |
| 3               | 256QAM | 1  | 0  | 19.98 | 19.53 | 19.98 | 20.5                | 4        |
| 3               | 256QAM | 1  | 8  | 19.89 | 19.97 | 19.89 |                     |          |
| 3               | 256QAM | 1  | 14 | 19.79 | 20.03 | 19.05 |                     |          |
| 3               | 256QAM | 8  | 0  | 18.63 | 18.80 | 18.73 | 20.5                | 4        |



|                 |        |    |   |       |       |       |                     |          |
|-----------------|--------|----|---|-------|-------|-------|---------------------|----------|
| 3               | 256QAM | 8  | 4 | 18.62 | 18.84 | 18.81 |                     |          |
| 3               | 256QAM | 8  | 7 | 18.66 | 18.76 | 18.56 |                     |          |
| 3               | 256QAM | 15 | 0 | 18.70 | 18.80 | 18.69 |                     |          |
| Channel         |        |    |   | 26697 | 26865 | 27033 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |   | 814.7 | 831.5 | 848.3 |                     |          |
| 1.4             | QPSK   | 1  | 0 | 22.89 | 23.00 | 23.03 | 24.5                | 0        |
| 1.4             | QPSK   | 1  | 3 | 22.91 | 23.11 | 23.09 |                     |          |
| 1.4             | QPSK   | 1  | 5 | 23.05 | 23.03 | 22.55 |                     |          |
| 1.4             | QPSK   | 3  | 0 | 22.79 | 22.91 | 22.99 |                     |          |
| 1.4             | QPSK   | 3  | 1 | 22.85 | 23.06 | 23.03 |                     |          |
| 1.4             | QPSK   | 3  | 3 | 22.96 | 22.94 | 22.55 |                     |          |
| 1.4             | QPSK   | 6  | 0 | 22.24 | 22.10 | 22.06 | 23.5                | 1        |
| 1.4             | 16QAM  | 1  | 0 | 22.49 | 22.32 | 22.33 | 23.5                | 1        |
| 1.4             | 16QAM  | 1  | 3 | 22.23 | 22.75 | 22.26 |                     |          |
| 1.4             | 16QAM  | 1  | 5 | 22.24 | 22.24 | 21.73 |                     |          |
| 1.4             | 16QAM  | 3  | 0 | 22.46 | 22.22 | 22.25 |                     |          |
| 1.4             | 16QAM  | 3  | 1 | 22.19 | 22.66 | 22.19 |                     |          |
| 1.4             | 16QAM  | 3  | 3 | 22.17 | 22.21 | 21.63 |                     |          |
| 1.4             | 16QAM  | 6  | 0 | 21.22 | 21.25 | 21.07 | 22.5                | 2        |
| 1.4             | 64QAM  | 1  | 0 | 21.38 | 21.00 | 21.34 | 22.5                | 2        |
| 1.4             | 64QAM  | 1  | 3 | 21.30 | 21.42 | 21.25 |                     |          |
| 1.4             | 64QAM  | 1  | 5 | 21.17 | 21.48 | 20.52 |                     |          |
| 1.4             | 64QAM  | 3  | 0 | 21.32 | 20.99 | 21.30 |                     |          |
| 1.4             | 64QAM  | 3  | 1 | 21.25 | 21.39 | 21.20 |                     |          |
| 1.4             | 64QAM  | 3  | 3 | 21.16 | 21.38 | 21.26 |                     |          |
| 1.4             | 64QAM  | 6  | 0 | 20.15 | 20.25 | 20.15 | 21.5                | 3        |
| 1.4             | 256QAM | 1  | 0 | 19.90 | 19.51 | 19.91 | 20.5                | 4        |
| 1.4             | 256QAM | 1  | 3 | 19.86 | 19.93 | 19.76 |                     |          |
| 1.4             | 256QAM | 1  | 5 | 19.75 | 20.03 | 19.06 |                     |          |
| 1.4             | 256QAM | 3  | 0 | 19.86 | 19.57 | 19.81 |                     |          |
| 1.4             | 256QAM | 3  | 1 | 19.75 | 19.93 | 19.78 |                     |          |
| 1.4             | 256QAM | 3  | 3 | 19.76 | 19.89 | 19.84 |                     |          |
| 1.4             | 256QAM | 6  | 0 | 18.74 | 18.78 | 18.71 | 20.5                | 4        |

<LTE Band 30 Main>

| 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         |            |         |           | 27710                 |                          |                        | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2310                  |                          |                        |                     |          |
| 10              | QPSK       | 1       | 0         |                       | 21.68                    |                        | 23                  | 0        |
| 10              | QPSK       | 1       | 25        |                       | 21.28                    |                        |                     |          |
| 10              | QPSK       | 1       | 49        |                       | 21.46                    |                        |                     |          |
| 10              | QPSK       | 25      | 0         |                       | 20.71                    |                        | 22                  | 1        |
| 10              | QPSK       | 25      | 12        |                       | 20.66                    |                        |                     |          |
| 10              | QPSK       | 25      | 25        |                       | 20.65                    |                        |                     |          |
| 10              | QPSK       | 50      | 0         |                       | 20.66                    |                        | 22                  | 1        |
| 10              | 16QAM      | 1       | 0         |                       | 21.01                    |                        |                     |          |
| 10              | 16QAM      | 1       | 25        |                       | 21.28                    |                        |                     |          |
| 10              | 16QAM      | 1       | 49        |                       | 20.62                    |                        | 21                  | 2        |
| 10              | 16QAM      | 25      | 0         |                       | 19.54                    |                        |                     |          |
| 10              | 16QAM      | 25      | 12        |                       | 19.65                    |                        |                     |          |
| 10              | 16QAM      | 25      | 25        |                       | 19.72                    |                        |                     |          |
| 10              | 16QAM      | 50      | 0         |                       | 19.67                    |                        | 21                  | 2        |
| 10              | 64QAM      | 1       | 0         |                       | 20.02                    |                        |                     |          |



|                 |        |    |    |        |       |        |                     |          |
|-----------------|--------|----|----|--------|-------|--------|---------------------|----------|
| 10              | 64QAM  | 1  | 25 |        | 19.96 |        |                     |          |
| 10              | 64QAM  | 1  | 49 |        | 19.78 |        |                     |          |
| 10              | 64QAM  | 25 | 0  |        | 18.67 |        |                     |          |
| 10              | 64QAM  | 25 | 12 |        | 18.68 |        | 20                  | 3        |
| 10              | 64QAM  | 25 | 25 |        | 18.71 |        |                     |          |
| 10              | 64QAM  | 50 | 0  |        | 18.78 |        |                     |          |
| 10              | 256QAM | 1  | 0  |        | 18.57 |        | 19                  | 4        |
| 10              | 256QAM | 1  | 25 |        | 18.49 |        |                     |          |
| 10              | 256QAM | 1  | 49 |        | 18.28 |        |                     |          |
| 10              | 256QAM | 25 | 0  |        | 17.24 |        | 19                  | 4        |
| 10              | 256QAM | 25 | 12 |        | 17.18 |        |                     |          |
| 10              | 256QAM | 25 | 25 |        | 17.31 |        |                     |          |
| 10              | 256QAM | 50 | 0  |        | 17.36 |        |                     |          |
| Channel         |        |    |    | 27685  | 27710 | 27735  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 2307.5 | 2310  | 2312.5 |                     |          |
| 5               | QPSK   | 1  | 0  | 21.65  | 21.67 | 21.67  | 23                  | 0        |
| 5               | QPSK   | 1  | 12 | 21.28  | 21.22 | 21.22  |                     |          |
| 5               | QPSK   | 1  | 24 | 21.38  | 21.45 | 21.44  |                     |          |
| 5               | QPSK   | 12 | 0  | 20.60  | 20.61 | 20.56  | 22                  | 1        |
| 5               | QPSK   | 12 | 7  | 20.57  | 20.57 | 20.59  |                     |          |
| 5               | QPSK   | 12 | 13 | 20.59  | 20.64 | 20.57  |                     |          |
| 5               | QPSK   | 25 | 0  | 20.59  | 20.58 | 20.64  |                     |          |
| 5               | 16QAM  | 1  | 0  | 20.99  | 20.92 | 20.98  | 22                  | 1        |
| 5               | 16QAM  | 1  | 12 | 21.20  | 21.19 | 21.28  |                     |          |
| 5               | 16QAM  | 1  | 24 | 20.62  | 20.59 | 20.53  |                     |          |
| 5               | 16QAM  | 12 | 0  | 19.53  | 19.52 | 19.46  | 21                  | 2        |
| 5               | 16QAM  | 12 | 7  | 19.58  | 19.64 | 19.59  |                     |          |
| 5               | 16QAM  | 12 | 13 | 19.62  | 19.67 | 19.64  |                     |          |
| 5               | 16QAM  | 25 | 0  | 19.63  | 19.59 | 19.63  |                     |          |
| 5               | 64QAM  | 1  | 0  | 19.95  | 20.00 | 20.00  | 21                  | 2        |
| 5               | 64QAM  | 1  | 12 | 19.86  | 19.92 | 19.86  |                     |          |
| 5               | 64QAM  | 1  | 24 | 19.69  | 19.77 | 19.72  |                     |          |
| 5               | 64QAM  | 12 | 0  | 18.57  | 18.65 | 18.58  | 20                  | 3        |
| 5               | 64QAM  | 12 | 7  | 18.61  | 18.61 | 18.67  |                     |          |
| 5               | 64QAM  | 12 | 13 | 18.68  | 18.67 | 18.64  |                     |          |
| 5               | 64QAM  | 25 | 0  | 18.73  | 18.71 | 18.77  |                     |          |
| 5               | 256QAM | 1  | 0  | 18.46  | 18.57 | 18.52  | 19                  | 4        |
| 5               | 256QAM | 1  | 12 | 18.42  | 18.43 | 18.37  |                     |          |
| 5               | 256QAM | 1  | 24 | 18.21  | 18.30 | 18.32  |                     |          |
| 5               | 256QAM | 12 | 0  | 17.09  | 17.21 | 17.13  | 19                  | 4        |
| 5               | 256QAM | 12 | 7  | 17.16  | 17.21 | 17.20  |                     |          |
| 5               | 256QAM | 12 | 13 | 17.20  | 17.21 | 17.16  |                     |          |
| 5               | 256QAM | 25 | 0  | 17.29  | 17.30 | 17.30  |                     |          |

<LTE Band 66 Main>

| 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         | 23.20                 | 22.91                    | 22.93                  | 24                  | 0        |
| 20              | QPSK       | 1       | 49        | 22.95                 | 23.01                    | 22.79                  |                     |          |
| 20              | QPSK       | 1       | 99        | 22.99                 | 22.94                    | 22.71                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.19                 | 22.15                    | 22.12                  | 23                  | 1        |
| 20              | QPSK       | 50      | 24        | 22.12                 | 22.02                    | 21.96                  |                     |          |





**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |     |    |        |        |        |                     |          |
|-----------------|--------|-----|----|--------|--------|--------|---------------------|----------|
| 20              | QPSK   | 50  | 50 | 22.13  | 22.10  | 22.07  |                     |          |
| 20              | QPSK   | 100 | 0  | 22.14  | 22.09  | 22.03  |                     |          |
| 20              | 16QAM  | 1   | 0  | 22.43  | 22.32  | 22.36  | 23                  | 1        |
| 20              | 16QAM  | 1   | 49 | 22.44  | 22.21  | 22.02  |                     |          |
| 20              | 16QAM  | 1   | 99 | 22.18  | 22.03  | 21.86  |                     |          |
| 20              | 16QAM  | 50  | 0  | 21.08  | 21.03  | 21.03  | 22                  | 2        |
| 20              | 16QAM  | 50  | 24 | 21.21  | 21.06  | 21.01  |                     |          |
| 20              | 16QAM  | 50  | 50 | 21.22  | 21.07  | 20.95  |                     |          |
| 20              | 16QAM  | 100 | 0  | 21.21  | 20.99  | 21.08  |                     |          |
| 20              | 64QAM  | 1   | 0  | 21.41  | 21.39  | 21.10  | 22                  | 2        |
| 20              | 64QAM  | 1   | 49 | 21.40  | 21.33  | 21.41  |                     |          |
| 20              | 64QAM  | 1   | 99 | 21.09  | 21.13  | 21.20  |                     |          |
| 20              | 64QAM  | 50  | 0  | 20.15  | 20.07  | 19.97  | 21                  | 3        |
| 20              | 64QAM  | 50  | 24 | 20.14  | 20.05  | 20.10  |                     |          |
| 20              | 64QAM  | 50  | 50 | 20.19  | 20.07  | 20.04  |                     |          |
| 20              | 64QAM  | 100 | 0  | 20.32  | 20.03  | 20.00  |                     |          |
| 20              | 256QAM | 1   | 0  | 19.91  | 19.97  | 19.68  | 20                  | 4        |
| 20              | 256QAM | 1   | 49 | 19.97  | 19.88  | 19.98  |                     |          |
| 20              | 256QAM | 1   | 99 | 19.68  | 19.69  | 19.75  |                     |          |
| 20              | 256QAM | 50  | 0  | 18.70  | 18.58  | 18.52  | 20                  | 4        |
| 20              | 256QAM | 50  | 24 | 18.71  | 18.59  | 18.66  |                     |          |
| 20              | 256QAM | 50  | 50 | 18.71  | 18.61  | 18.56  |                     |          |
| 20              | 256QAM | 100 | 0  | 18.84  | 18.62  | 18.52  |                     |          |
| Channel         |        |     |    | 132047 | 132322 | 132597 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |     |    | 1717.5 | 1745   | 1772.5 |                     |          |
| 15              | QPSK   | 1   | 0  | 23.15  | 22.82  | 22.88  | 24                  | 0        |
| 15              | QPSK   | 1   | 37 | 22.92  | 22.99  | 22.69  |                     |          |
| 15              | QPSK   | 1   | 74 | 22.93  | 22.93  | 22.71  |                     |          |
| 15              | QPSK   | 36  | 0  | 22.09  | 22.02  | 21.97  | 23                  | 1        |
| 15              | QPSK   | 36  | 20 | 22.10  | 22.01  | 21.95  |                     |          |
| 15              | QPSK   | 36  | 39 | 22.07  | 22.10  | 22.03  |                     |          |
| 15              | QPSK   | 75  | 0  | 22.10  | 22.00  | 21.93  |                     |          |
| 15              | 16QAM  | 1   | 0  | 22.43  | 22.27  | 22.27  | 23                  | 1        |
| 15              | 16QAM  | 1   | 37 | 22.44  | 22.17  | 21.93  |                     |          |
| 15              | 16QAM  | 1   | 74 | 22.10  | 21.97  | 21.82  |                     |          |
| 15              | 16QAM  | 36  | 0  | 21.02  | 21.01  | 21.03  | 22                  | 2        |
| 15              | 16QAM  | 36  | 20 | 21.13  | 21.02  | 21.01  |                     |          |
| 15              | 16QAM  | 36  | 39 | 21.14  | 21.05  | 20.85  |                     |          |
| 15              | 16QAM  | 75  | 0  | 21.13  | 20.98  | 21.06  |                     |          |
| 15              | 64QAM  | 1   | 0  | 21.37  | 21.32  | 21.10  | 22                  | 2        |
| 15              | 64QAM  | 1   | 37 | 21.37  | 21.29  | 21.35  |                     |          |
| 15              | 64QAM  | 1   | 74 | 21.09  | 21.10  | 21.14  |                     |          |
| 15              | 64QAM  | 36  | 0  | 20.14  | 19.97  | 19.88  | 21                  | 3        |
| 15              | 64QAM  | 36  | 20 | 20.04  | 19.99  | 20.05  |                     |          |
| 15              | 64QAM  | 36  | 39 | 20.15  | 20.00  | 19.99  |                     |          |
| 15              | 64QAM  | 75  | 0  | 20.25  | 19.96  | 19.92  |                     |          |
| 15              | 256QAM | 1   | 0  | 19.91  | 19.84  | 19.70  | 20                  | 4        |
| 15              | 256QAM | 1   | 37 | 19.90  | 19.81  | 19.89  |                     |          |
| 15              | 256QAM | 1   | 74 | 19.69  | 19.68  | 19.68  |                     |          |
| 15              | 256QAM | 36  | 0  | 18.65  | 18.47  | 18.44  | 20                  | 4        |
| 15              | 256QAM | 36  | 20 | 18.61  | 18.53  | 18.58  |                     |          |
| 15              | 256QAM | 36  | 39 | 18.72  | 18.54  | 18.53  |                     |          |
| 15              | 256QAM | 75  | 0  | 18.76  | 18.46  | 18.51  |                     |          |
| Channel         |        |     |    | 132022 | 132322 | 132622 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |     |    | 1715   | 1745   | 1775   |                     |          |
| 10              | QPSK   | 1   | 0  | 23.13  | 22.79  | 22.85  | 24                  | 0        |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |    |    |        |        |        |    |   |
|-----------------|--------|----|----|--------|--------|--------|----|---|
| 10              | QPSK   | 1  | 25 | 22.92  | 22.96  | 22.61  | 23 | 1 |
| 10              | QPSK   | 1  | 49 | 22.86  | 22.93  | 22.61  |    |   |
| 10              | QPSK   | 25 | 0  | 22.02  | 21.92  | 21.92  |    |   |
| 10              | QPSK   | 25 | 12 | 22.02  | 22.00  | 21.92  |    |   |
| 10              | QPSK   | 25 | 25 | 22.05  | 22.07  | 21.94  |    |   |
| 10              | QPSK   | 50 | 0  | 22.07  | 21.91  | 21.93  |    |   |
| 10              | 16QAM  | 1  | 0  | 22.39  | 22.22  | 22.23  | 23 | 1 |
| 10              | 16QAM  | 1  | 25 | 22.40  | 22.16  | 21.86  |    |   |
| 10              | 16QAM  | 1  | 49 | 22.01  | 21.95  | 21.77  |    |   |
| 10              | 16QAM  | 25 | 0  | 21.00  | 20.98  | 20.98  | 22 | 2 |
| 10              | 16QAM  | 25 | 12 | 21.03  | 21.01  | 20.94  |    |   |
| 10              | 16QAM  | 25 | 25 | 21.14  | 20.98  | 20.75  |    |   |
| 10              | 16QAM  | 50 | 0  | 21.07  | 20.93  | 20.99  |    |   |
| 10              | 64QAM  | 1  | 0  | 21.29  | 21.24  | 21.00  | 22 | 2 |
| 10              | 64QAM  | 1  | 25 | 21.29  | 21.19  | 21.34  |    |   |
| 10              | 64QAM  | 1  | 49 | 21.08  | 21.05  | 21.10  |    |   |
| 10              | 64QAM  | 25 | 0  | 20.11  | 19.88  | 19.86  | 21 | 3 |
| 10              | 64QAM  | 25 | 12 | 19.94  | 19.92  | 20.02  |    |   |
| 10              | 64QAM  | 25 | 25 | 20.05  | 19.93  | 19.92  |    |   |
| 10              | 64QAM  | 50 | 0  | 20.21  | 19.89  | 19.88  |    |   |
| 10              | 256QAM | 1  | 0  | 19.81  | 19.77  | 19.60  | 20 | 4 |
| 10              | 256QAM | 1  | 25 | 19.87  | 19.76  | 19.86  |    |   |
| 10              | 256QAM | 1  | 49 | 19.58  | 19.62  | 19.66  |    |   |
| 10              | 256QAM | 25 | 0  | 18.67  | 18.42  | 18.45  | 20 | 4 |
| 10              | 256QAM | 25 | 12 | 18.49  | 18.48  | 18.59  |    |   |
| 10              | 256QAM | 25 | 25 | 18.65  | 18.43  | 18.52  |    |   |
| 10              | 256QAM | 50 | 0  | 18.76  | 18.43  | 18.39  |    |   |
| Channel         |        |    |    | 131997 | 132322 | 132647 |    |   |
| Frequency (MHz) |        |    |    | 1712.5 | 1745   | 1777.5 |    |   |
| 5               | QPSK   | 1  | 0  | 23.07  | 22.78  | 22.82  | 24 | 0 |
| 5               | QPSK   | 1  | 12 | 22.83  | 22.94  | 22.56  |    |   |
| 5               | QPSK   | 1  | 24 | 22.82  | 22.83  | 22.51  |    |   |
| 5               | QPSK   | 12 | 0  | 21.95  | 21.84  | 21.84  | 23 | 1 |
| 5               | QPSK   | 12 | 7  | 21.97  | 21.90  | 21.83  |    |   |
| 5               | QPSK   | 12 | 13 | 21.96  | 21.98  | 21.94  |    |   |
| 5               | QPSK   | 25 | 0  | 21.99  | 21.81  | 21.87  |    |   |
| 5               | 16QAM  | 1  | 0  | 22.39  | 22.16  | 22.19  | 23 | 1 |
| 5               | 16QAM  | 1  | 12 | 22.33  | 22.13  | 21.80  |    |   |
| 5               | 16QAM  | 1  | 24 | 21.98  | 21.90  | 21.74  |    |   |
| 5               | 16QAM  | 12 | 0  | 20.91  | 20.88  | 20.92  | 22 | 2 |
| 5               | 16QAM  | 12 | 7  | 21.01  | 20.99  | 20.89  |    |   |
| 5               | 16QAM  | 12 | 13 | 21.14  | 20.88  | 20.75  |    |   |
| 5               | 16QAM  | 25 | 0  | 20.98  | 20.85  | 20.93  |    |   |
| 5               | 64QAM  | 1  | 0  | 21.23  | 21.24  | 20.95  |    |   |
| 5               | 64QAM  | 1  | 12 | 21.28  | 21.15  | 21.31  | 22 | 2 |
| 5               | 64QAM  | 1  | 24 | 21.04  | 21.05  | 21.10  |    |   |
| 5               | 64QAM  | 12 | 0  | 20.08  | 19.81  | 19.80  | 21 | 3 |
| 5               | 64QAM  | 12 | 7  | 19.90  | 19.87  | 20.00  |    |   |
| 5               | 64QAM  | 12 | 13 | 19.97  | 19.85  | 19.87  |    |   |
| 5               | 64QAM  | 25 | 0  | 20.17  | 19.87  | 19.80  |    |   |
| 5               | 256QAM | 1  | 0  | 19.73  | 19.84  | 19.46  | 20 | 4 |
| 5               | 256QAM | 1  | 12 | 19.85  | 19.68  | 19.87  |    |   |
| 5               | 256QAM | 1  | 24 | 19.64  | 19.56  | 19.65  |    |   |
| 5               | 256QAM | 12 | 0  | 18.67  | 18.40  | 18.38  | 20 | 4 |
| 5               | 256QAM | 12 | 7  | 18.42  | 18.39  | 18.52  |    |   |
| 5               | 256QAM | 12 | 13 | 18.49  | 18.37  | 18.43  |    |   |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |    |    |        |        |        |                        |             |
|-----------------|--------|----|----|--------|--------|--------|------------------------|-------------|
| 5               | 256QAM | 25 | 0  | 18.75  | 18.39  | 18.32  |                        |             |
| Channel         |        |    |    | 131987 | 132322 | 132657 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |        |    |    | 1711.5 | 1745   | 1778.5 |                        |             |
| 3               | QPSK   | 1  | 0  | 23.07  | 22.72  | 22.76  | 24                     | 0           |
| 3               | QPSK   | 1  | 8  | 22.73  | 22.89  | 22.54  |                        |             |
| 3               | QPSK   | 1  | 14 | 22.80  | 22.82  | 22.44  |                        |             |
| 3               | QPSK   | 8  | 0  | 21.95  | 21.80  | 21.79  | 23                     | 1           |
| 3               | QPSK   | 8  | 4  | 21.91  | 21.85  | 21.74  |                        |             |
| 3               | QPSK   | 8  | 7  | 21.96  | 21.97  | 21.85  |                        |             |
| 3               | QPSK   | 15 | 0  | 21.95  | 21.71  | 21.79  |                        |             |
| 3               | 16QAM  | 1  | 0  | 22.36  | 22.12  | 22.19  | 23                     | 1           |
| 3               | 16QAM  | 1  | 8  | 22.31  | 22.09  | 21.73  |                        |             |
| 3               | 16QAM  | 1  | 14 | 21.90  | 21.89  | 21.72  |                        |             |
| 3               | 16QAM  | 8  | 0  | 20.82  | 20.86  | 20.88  | 22                     | 2           |
| 3               | 16QAM  | 8  | 4  | 20.94  | 20.90  | 20.85  |                        |             |
| 3               | 16QAM  | 8  | 7  | 21.12  | 20.78  | 20.65  |                        |             |
| 3               | 16QAM  | 15 | 0  | 20.89  | 20.76  | 20.87  |                        |             |
| 3               | 64QAM  | 1  | 0  | 21.13  | 21.22  | 20.94  | 22                     | 2           |
| 3               | 64QAM  | 1  | 8  | 21.28  | 21.07  | 21.29  |                        |             |
| 3               | 64QAM  | 1  | 14 | 21.00  | 20.95  | 21.06  |                        |             |
| 3               | 64QAM  | 8  | 0  | 20.05  | 19.74  | 19.77  | 21                     | 3           |
| 3               | 64QAM  | 8  | 4  | 19.88  | 19.78  | 19.99  |                        |             |
| 3               | 64QAM  | 8  | 7  | 19.94  | 19.76  | 19.82  |                        |             |
| 3               | 64QAM  | 15 | 0  | 20.16  | 19.80  | 19.70  |                        |             |
| 3               | 256QAM | 1  | 0  | 19.70  | 19.82  | 19.47  | 20                     | 4           |
| 3               | 256QAM | 1  | 8  | 19.81  | 19.65  | 19.89  |                        |             |
| 3               | 256QAM | 1  | 14 | 19.54  | 19.45  | 19.61  |                        |             |
| 3               | 256QAM | 8  | 0  | 18.57  | 18.29  | 18.27  | 20                     | 4           |
| 3               | 256QAM | 8  | 4  | 18.47  | 18.34  | 18.50  |                        |             |
| 3               | 256QAM | 8  | 7  | 18.49  | 18.30  | 18.36  |                        |             |
| 3               | 256QAM | 15 | 0  | 18.73  | 18.36  | 18.26  |                        |             |
| Channel         |        |    |    | 131979 | 132322 | 132665 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |        |    |    | 1710.7 | 1745   | 1779.3 |                        |             |
| 1.4             | QPSK   | 1  | 0  | 23.07  | 22.72  | 22.76  | 24                     | 0           |
| 1.4             | QPSK   | 1  | 3  | 22.73  | 22.89  | 22.54  |                        |             |
| 1.4             | QPSK   | 1  | 5  | 22.80  | 22.82  | 22.44  |                        |             |
| 1.4             | QPSK   | 3  | 0  | 22.98  | 22.65  | 22.67  |                        |             |
| 1.4             | QPSK   | 3  | 1  | 22.64  | 22.79  | 22.46  |                        |             |
| 1.4             | QPSK   | 3  | 3  | 22.75  | 22.77  | 22.42  |                        |             |
| 1.4             | QPSK   | 6  | 0  | 21.95  | 21.71  | 21.79  | 23                     | 1           |
| 1.4             | 16QAM  | 1  | 0  | 22.36  | 22.12  | 22.19  | 23                     | 1           |
| 1.4             | 16QAM  | 1  | 3  | 22.31  | 22.09  | 21.73  |                        |             |
| 1.4             | 16QAM  | 1  | 5  | 21.90  | 21.89  | 21.72  |                        |             |
| 1.4             | 16QAM  | 3  | 0  | 22.31  | 22.12  | 22.11  |                        |             |
| 1.4             | 16QAM  | 3  | 1  | 22.30  | 21.99  | 21.72  |                        |             |
| 1.4             | 16QAM  | 3  | 3  | 21.81  | 21.79  | 21.67  |                        |             |
| 1.4             | 16QAM  | 6  | 0  | 20.89  | 20.76  | 20.87  | 22                     | 2           |
| 1.4             | 64QAM  | 1  | 0  | 21.13  | 21.22  | 20.94  | 22                     | 2           |
| 1.4             | 64QAM  | 1  | 3  | 21.28  | 21.07  | 21.29  |                        |             |
| 1.4             | 64QAM  | 1  | 5  | 21.00  | 20.95  | 21.06  |                        |             |
| 1.4             | 64QAM  | 3  | 0  | 21.13  | 21.13  | 20.94  |                        |             |
| 1.4             | 64QAM  | 3  | 1  | 21.24  | 21.04  | 21.28  |                        |             |
| 1.4             | 64QAM  | 3  | 3  | 20.90  | 20.87  | 21.02  |                        |             |
| 1.4             | 64QAM  | 6  | 0  | 20.16  | 19.80  | 19.70  | 21                     | 3           |
| 1.4             | 256QAM | 1  | 0  | 19.68  | 19.78  | 19.49  | 20                     | 4           |
| 1.4             | 256QAM | 1  | 3  | 19.82  | 19.67  | 19.81  |                        |             |



|     |        |   |   |       |       |       |    |   |
|-----|--------|---|---|-------|-------|-------|----|---|
| 1.4 | 256QAM | 1 | 5 | 19.56 | 19.45 | 19.63 |    |   |
| 1.4 | 256QAM | 3 | 0 | 19.68 | 19.66 | 19.48 |    |   |
| 1.4 | 256QAM | 3 | 1 | 19.80 | 19.55 | 19.88 |    |   |
| 1.4 | 256QAM | 3 | 3 | 19.47 | 19.40 | 19.60 |    |   |
| 1.4 | 256QAM | 6 | 0 | 18.73 | 18.32 | 18.22 |    |   |
|     |        |   |   |       |       |       | 20 | 4 |

<LTE Band 66 Aux 2>

| 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         | 23.20                 | 22.91                    | 22.93                  | 24                  | 0        |
| 20              | QPSK       | 1       | 49        | 22.95                 | 23.01                    | 22.79                  |                     |          |
| 20              | QPSK       | 1       | 99        | 22.99                 | 22.94                    | 22.71                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.19                 | 22.15                    | 22.12                  | 23                  | 1        |
| 20              | QPSK       | 50      | 24        | 22.12                 | 22.02                    | 21.96                  |                     |          |
| 20              | QPSK       | 50      | 50        | 22.13                 | 22.10                    | 22.07                  |                     |          |
| 20              | QPSK       | 100     | 0         | 22.14                 | 22.09                    | 22.03                  |                     |          |
| 20              | 16QAM      | 1       | 0         | 22.43                 | 22.32                    | 22.36                  | 23                  | 1        |
| 20              | 16QAM      | 1       | 49        | 22.44                 | 22.21                    | 22.02                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 22.18                 | 22.03                    | 21.86                  |                     |          |
| 20              | 16QAM      | 50      | 0         | 21.08                 | 21.03                    | 21.03                  | 22                  | 2        |
| 20              | 16QAM      | 50      | 24        | 21.21                 | 21.06                    | 21.01                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 21.22                 | 21.07                    | 20.95                  |                     |          |
| 20              | 16QAM      | 100     | 0         | 21.21                 | 20.99                    | 21.08                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 21.41                 | 21.39                    | 21.10                  | 22                  | 2        |
| 20              | 64QAM      | 1       | 49        | 21.40                 | 21.33                    | 21.41                  |                     |          |
| 20              | 64QAM      | 1       | 99        | 21.09                 | 21.13                    | 21.20                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 20.15                 | 20.07                    | 19.97                  | 21                  | 3        |
| 20              | 64QAM      | 50      | 24        | 20.14                 | 20.05                    | 20.10                  |                     |          |
| 20              | 64QAM      | 50      | 50        | 20.19                 | 20.07                    | 20.04                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 20.32                 | 20.03                    | 20.00                  |                     |          |
| 20              | 256QAM     | 1       | 0         | 18.68                 | 18.77                    | 18.73                  | 20                  | 4        |
| 20              | 256QAM     | 1       | 49        | 18.80                 | 18.87                    | 18.77                  |                     |          |
| 20              | 256QAM     | 1       | 99        | 19.62                 | 19.59                    | 19.59                  |                     |          |
| 20              | 256QAM     | 50      | 0         | 18.24                 | 18.25                    | 18.25                  | 20                  | 4        |
| 20              | 256QAM     | 50      | 24        | 18.02                 | 18.16                    | 18.05                  |                     |          |
| 20              | 256QAM     | 50      | 50        | 18.90                 | 18.93                    | 18.96                  |                     |          |
| 20              | 256QAM     | 100     | 0         | 18.05                 | 18.08                    | 18.05                  |                     |          |
| Channel         |            |         |           | 132047                | 132322                   | 132597                 |                     |          |
| Frequency (MHz) |            |         |           | 1717.5                | 1745                     | 1772.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 23.15                 | 22.82                    | 22.88                  | 24                  | 0        |
| 15              | QPSK       | 1       | 37        | 22.92                 | 22.99                    | 22.69                  |                     |          |
| 15              | QPSK       | 1       | 74        | 22.93                 | 22.93                    | 22.71                  |                     |          |
| 15              | QPSK       | 36      | 0         | 22.09                 | 22.02                    | 21.97                  | 23                  | 1        |
| 15              | QPSK       | 36      | 20        | 22.10                 | 22.01                    | 21.95                  |                     |          |
| 15              | QPSK       | 36      | 39        | 22.07                 | 22.10                    | 22.03                  |                     |          |
| 15              | QPSK       | 75      | 0         | 22.10                 | 22.00                    | 21.93                  |                     |          |
| 15              | 16QAM      | 1       | 0         | 22.43                 | 22.27                    | 22.27                  | 23                  | 1        |
| 15              | 16QAM      | 1       | 37        | 22.44                 | 22.17                    | 21.93                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 22.10                 | 21.97                    | 21.82                  |                     |          |
| 15              | 16QAM      | 36      | 0         | 21.02                 | 21.01                    | 21.03                  | 22                  | 2        |
| 15              | 16QAM      | 36      | 20        | 21.13                 | 21.02                    | 21.01                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 21.14                 | 21.05                    | 20.85                  |                     |          |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |    |    |        |        |        |    |   |                     |          |
|-----------------|--------|----|----|--------|--------|--------|----|---|---------------------|----------|
| 15              | 16QAM  | 75 | 0  | 21.13  | 20.98  | 21.06  |    |   |                     |          |
| 15              | 64QAM  | 1  | 0  | 21.37  | 21.32  | 21.10  | 22 | 2 |                     |          |
| 15              | 64QAM  | 1  | 37 | 21.37  | 21.29  | 21.35  |    |   |                     |          |
| 15              | 64QAM  | 1  | 74 | 21.09  | 21.10  | 21.14  |    |   |                     |          |
| 15              | 64QAM  | 36 | 0  | 20.14  | 19.97  | 19.88  | 21 | 3 |                     |          |
| 15              | 64QAM  | 36 | 20 | 20.04  | 19.99  | 20.05  |    |   |                     |          |
| 15              | 64QAM  | 36 | 39 | 20.15  | 20.00  | 19.99  |    |   |                     |          |
| 15              | 64QAM  | 75 | 0  | 20.25  | 19.96  | 19.92  | 20 | 4 |                     |          |
| 15              | 256QAM | 1  | 0  | 18.70  | 18.75  | 18.59  |    |   |                     |          |
| 15              | 256QAM | 1  | 37 | 18.84  | 18.76  | 18.79  |    |   |                     |          |
| 15              | 256QAM | 1  | 74 | 19.51  | 19.51  | 19.56  | 20 | 4 |                     |          |
| 15              | 256QAM | 36 | 0  | 18.17  | 18.21  | 18.13  |    |   |                     |          |
| 15              | 256QAM | 36 | 20 | 18.08  | 18.08  | 18.05  |    |   |                     |          |
| 15              | 256QAM | 36 | 39 | 18.79  | 18.83  | 18.83  | 20 | 4 |                     |          |
| 15              | 256QAM | 75 | 0  | 18.01  | 18.03  | 18.04  |    |   |                     |          |
| Channel         |        |    |    | 132022 | 132322 | 132622 |    |   | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 1715   | 1745   | 1775   |    |   |                     |          |
| 10              | QPSK   | 1  | 0  | 23.13  | 22.79  | 22.85  | 24 | 0 |                     |          |
| 10              | QPSK   | 1  | 25 | 22.92  | 22.96  | 22.61  |    |   |                     |          |
| 10              | QPSK   | 1  | 49 | 22.86  | 22.93  | 22.61  |    |   |                     |          |
| 10              | QPSK   | 25 | 0  | 22.02  | 21.92  | 21.92  | 23 | 1 |                     |          |
| 10              | QPSK   | 25 | 12 | 22.02  | 22.00  | 21.92  |    |   |                     |          |
| 10              | QPSK   | 25 | 25 | 22.05  | 22.07  | 21.94  |    |   |                     |          |
| 10              | QPSK   | 50 | 0  | 22.07  | 21.91  | 21.93  | 23 | 1 |                     |          |
| 10              | 16QAM  | 1  | 0  | 22.39  | 22.22  | 22.23  |    |   |                     |          |
| 10              | 16QAM  | 1  | 25 | 22.40  | 22.16  | 21.86  |    |   |                     |          |
| 10              | 16QAM  | 1  | 49 | 22.01  | 21.95  | 21.77  | 22 | 2 |                     |          |
| 10              | 16QAM  | 25 | 0  | 21.00  | 20.98  | 20.98  |    |   |                     |          |
| 10              | 16QAM  | 25 | 12 | 21.03  | 21.01  | 20.94  |    |   |                     |          |
| 10              | 16QAM  | 25 | 25 | 21.14  | 20.98  | 20.75  | 22 | 2 |                     |          |
| 10              | 16QAM  | 50 | 0  | 21.07  | 20.93  | 20.99  |    |   |                     |          |
| 10              | 64QAM  | 1  | 0  | 21.29  | 21.24  | 21.00  |    |   |                     |          |
| 10              | 64QAM  | 1  | 25 | 21.29  | 21.19  | 21.34  | 22 | 2 |                     |          |
| 10              | 64QAM  | 1  | 49 | 21.08  | 21.05  | 21.10  |    |   |                     |          |
| 10              | 64QAM  | 25 | 0  | 20.11  | 19.88  | 19.86  |    |   |                     |          |
| 10              | 64QAM  | 25 | 12 | 19.94  | 19.92  | 20.02  | 21 | 3 |                     |          |
| 10              | 64QAM  | 25 | 25 | 20.05  | 19.93  | 19.92  |    |   |                     |          |
| 10              | 64QAM  | 50 | 0  | 20.21  | 19.89  | 19.88  |    |   |                     |          |
| 10              | 256QAM | 1  | 0  | 18.57  | 18.63  | 18.63  | 20 | 4 |                     |          |
| 10              | 256QAM | 1  | 25 | 18.70  | 18.78  | 18.72  |    |   |                     |          |
| 10              | 256QAM | 1  | 49 | 19.50  | 19.55  | 19.51  |    |   |                     |          |
| 10              | 256QAM | 25 | 0  | 18.06  | 18.04  | 18.10  | 20 | 4 |                     |          |
| 10              | 256QAM | 25 | 12 | 18.00  | 18.01  | 18.08  |    |   |                     |          |
| 10              | 256QAM | 25 | 25 | 18.72  | 18.80  | 18.79  |    |   |                     |          |
| 10              | 256QAM | 50 | 0  | 18.15  | 18.05  | 18.14  | 20 | 4 |                     |          |
| Channel         |        |    |    | 131997 | 132322 | 132647 |    |   | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 1712.5 | 1745   | 1777.5 |    |   |                     |          |
| 5               | QPSK   | 1  | 0  | 23.07  | 22.78  | 22.82  | 24 | 0 |                     |          |
| 5               | QPSK   | 1  | 12 | 22.83  | 22.94  | 22.56  |    |   |                     |          |
| 5               | QPSK   | 1  | 24 | 22.82  | 22.83  | 22.51  |    |   |                     |          |
| 5               | QPSK   | 12 | 0  | 21.95  | 21.84  | 21.84  | 23 | 1 |                     |          |
| 5               | QPSK   | 12 | 7  | 21.97  | 21.90  | 21.83  |    |   |                     |          |
| 5               | QPSK   | 12 | 13 | 21.96  | 21.98  | 21.94  |    |   |                     |          |
| 5               | QPSK   | 25 | 0  | 21.99  | 21.81  | 21.87  | 23 | 1 |                     |          |
| 5               | 16QAM  | 1  | 0  | 22.39  | 22.16  | 22.19  |    |   |                     |          |
| 5               | 16QAM  | 1  | 12 | 22.33  | 22.13  | 21.80  |    |   |                     |          |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |    |    |        |        |        |                     |          |
|-----------------|--------|----|----|--------|--------|--------|---------------------|----------|
| 5               | 16QAM  | 1  | 24 | 21.98  | 21.90  | 21.74  |                     |          |
| 5               | 16QAM  | 12 | 0  | 20.91  | 20.88  | 20.92  | 22                  | 2        |
| 5               | 16QAM  | 12 | 7  | 21.01  | 20.99  | 20.89  |                     |          |
| 5               | 16QAM  | 12 | 13 | 21.14  | 20.88  | 20.75  |                     |          |
| 5               | 16QAM  | 25 | 0  | 20.98  | 20.85  | 20.93  |                     |          |
| 5               | 64QAM  | 1  | 0  | 21.23  | 21.24  | 20.95  | 22                  | 2        |
| 5               | 64QAM  | 1  | 12 | 21.28  | 21.15  | 21.31  |                     |          |
| 5               | 64QAM  | 1  | 24 | 21.04  | 21.05  | 21.10  |                     |          |
| 5               | 64QAM  | 12 | 0  | 20.08  | 19.81  | 19.80  | 21                  | 3        |
| 5               | 64QAM  | 12 | 7  | 19.90  | 19.87  | 20.00  |                     |          |
| 5               | 64QAM  | 12 | 13 | 19.97  | 19.85  | 19.87  |                     |          |
| 5               | 64QAM  | 25 | 0  | 20.17  | 19.87  | 19.80  |                     |          |
| 5               | 256QAM | 1  | 0  | 18.61  | 18.60  | 18.63  | 20                  | 4        |
| 5               | 256QAM | 1  | 12 | 18.76  | 18.74  | 18.73  |                     |          |
| 5               | 256QAM | 1  | 24 | 19.37  | 19.44  | 19.55  |                     |          |
| 5               | 256QAM | 12 | 0  | 18.04  | 18.11  | 18.13  | 20                  | 4        |
| 5               | 256QAM | 12 | 7  | 18.29  | 18.12  | 18.21  |                     |          |
| 5               | 256QAM | 12 | 13 | 18.73  | 18.68  | 18.68  |                     |          |
| 5               | 256QAM | 25 | 0  | 18.21  | 18.28  | 18.21  |                     |          |
| Channel         |        |    |    | 131987 | 132322 | 132657 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 1711.5 | 1745   | 1778.5 |                     |          |
| 3               | QPSK   | 1  | 0  | 23.07  | 22.72  | 22.76  | 24                  | 0        |
| 3               | QPSK   | 1  | 8  | 22.73  | 22.89  | 22.54  |                     |          |
| 3               | QPSK   | 1  | 14 | 22.80  | 22.82  | 22.44  |                     |          |
| 3               | QPSK   | 8  | 0  | 21.95  | 21.80  | 21.79  | 23                  | 1        |
| 3               | QPSK   | 8  | 4  | 21.91  | 21.85  | 21.74  |                     |          |
| 3               | QPSK   | 8  | 7  | 21.96  | 21.97  | 21.85  |                     |          |
| 3               | QPSK   | 15 | 0  | 21.95  | 21.71  | 21.79  |                     |          |
| 3               | 16QAM  | 1  | 0  | 22.36  | 22.12  | 22.19  | 23                  | 1        |
| 3               | 16QAM  | 1  | 8  | 22.31  | 22.09  | 21.73  |                     |          |
| 3               | 16QAM  | 1  | 14 | 21.90  | 21.89  | 21.72  |                     |          |
| 3               | 16QAM  | 8  | 0  | 20.82  | 20.86  | 20.88  | 22                  | 2        |
| 3               | 16QAM  | 8  | 4  | 20.94  | 20.90  | 20.85  |                     |          |
| 3               | 16QAM  | 8  | 7  | 21.12  | 20.78  | 20.65  |                     |          |
| 3               | 16QAM  | 15 | 0  | 20.89  | 20.76  | 20.87  |                     |          |
| 3               | 64QAM  | 1  | 0  | 21.13  | 21.22  | 20.94  | 22                  | 2        |
| 3               | 64QAM  | 1  | 8  | 21.28  | 21.07  | 21.29  |                     |          |
| 3               | 64QAM  | 1  | 14 | 21.00  | 20.95  | 21.06  |                     |          |
| 3               | 64QAM  | 8  | 0  | 20.05  | 19.74  | 19.77  | 21                  | 3        |
| 3               | 64QAM  | 8  | 4  | 19.88  | 19.78  | 19.99  |                     |          |
| 3               | 64QAM  | 8  | 7  | 19.94  | 19.76  | 19.82  |                     |          |
| 3               | 64QAM  | 15 | 0  | 20.16  | 19.80  | 19.70  |                     |          |
| 3               | 256QAM | 1  | 0  | 18.71  | 18.61  | 18.75  | 20                  | 4        |
| 3               | 256QAM | 1  | 8  | 18.52  | 18.76  | 18.71  |                     |          |
| 3               | 256QAM | 1  | 14 | 19.34  | 19.42  | 19.41  |                     |          |
| 3               | 256QAM | 8  | 0  | 18.14  | 18.11  | 18.01  | 20                  | 4        |
| 3               | 256QAM | 8  | 4  | 18.15  | 18.04  | 18.11  |                     |          |
| 3               | 256QAM | 8  | 7  | 18.74  | 18.76  | 18.64  |                     |          |
| 3               | 256QAM | 15 | 0  | 18.22  | 18.26  | 18.20  |                     |          |
| Channel         |        |    |    | 131979 | 132322 | 132665 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 1710.7 | 1745   | 1779.3 |                     |          |
| 1.4             | QPSK   | 1  | 0  | 23.07  | 22.72  | 22.76  | 24                  | 0        |
| 1.4             | QPSK   | 1  | 3  | 22.73  | 22.89  | 22.54  |                     |          |
| 1.4             | QPSK   | 1  | 5  | 22.80  | 22.82  | 22.44  |                     |          |
| 1.4             | QPSK   | 3  | 0  | 22.98  | 22.65  | 22.67  |                     |          |
| 1.4             | QPSK   | 3  | 1  | 22.64  | 22.79  | 22.46  |                     |          |



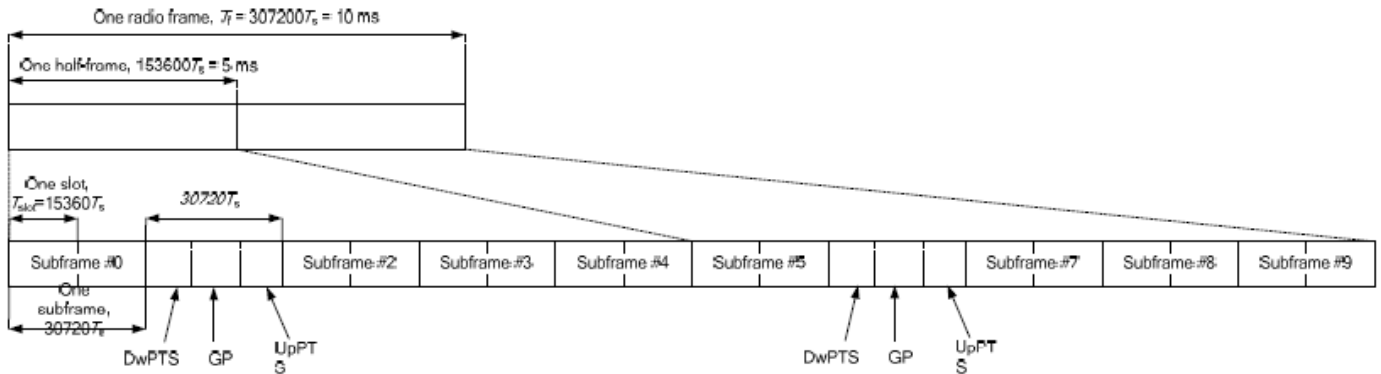
|     |        |   |   |       |       |       |    |   |
|-----|--------|---|---|-------|-------|-------|----|---|
| 1.4 | QPSK   | 3 | 3 | 22.75 | 22.77 | 22.42 |    |   |
| 1.4 | QPSK   | 6 | 0 | 21.95 | 21.71 | 21.79 | 23 | 1 |
| 1.4 | 16QAM  | 1 | 0 | 22.36 | 22.12 | 22.19 | 23 | 1 |
| 1.4 | 16QAM  | 1 | 3 | 22.31 | 22.09 | 21.73 |    |   |
| 1.4 | 16QAM  | 1 | 5 | 21.90 | 21.89 | 21.72 |    |   |
| 1.4 | 16QAM  | 3 | 0 | 22.31 | 22.12 | 22.11 |    |   |
| 1.4 | 16QAM  | 3 | 1 | 22.30 | 21.99 | 21.72 |    |   |
| 1.4 | 16QAM  | 3 | 3 | 21.81 | 21.79 | 21.67 |    |   |
| 1.4 | 16QAM  | 6 | 0 | 20.89 | 20.76 | 20.87 | 22 | 2 |
| 1.4 | 64QAM  | 1 | 0 | 21.13 | 21.22 | 20.94 | 22 | 2 |
| 1.4 | 64QAM  | 1 | 3 | 21.28 | 21.07 | 21.29 |    |   |
| 1.4 | 64QAM  | 1 | 5 | 21.00 | 20.95 | 21.06 |    |   |
| 1.4 | 64QAM  | 3 | 0 | 21.13 | 21.13 | 20.94 |    |   |
| 1.4 | 64QAM  | 3 | 1 | 21.24 | 21.04 | 21.28 |    |   |
| 1.4 | 64QAM  | 3 | 3 | 20.90 | 20.87 | 21.02 |    |   |
| 1.4 | 64QAM  | 6 | 0 | 20.16 | 19.80 | 19.70 | 21 | 3 |
| 1.4 | 256QAM | 1 | 0 | 18.63 | 18.77 | 18.73 | 20 | 4 |
| 1.4 | 256QAM | 1 | 3 | 19.48 | 19.55 | 19.47 |    |   |
| 1.4 | 256QAM | 1 | 5 | 19.45 | 19.71 | 19.63 |    |   |
| 1.4 | 256QAM | 3 | 0 | 18.59 | 18.59 | 18.71 |    |   |
| 1.4 | 256QAM | 3 | 1 | 18.54 | 18.64 | 18.61 |    |   |
| 1.4 | 256QAM | 3 | 3 | 19.27 | 19.30 | 19.34 |    |   |
| 1.4 | 256QAM | 6 | 0 | 18.13 | 18.11 | 18.11 | 20 | 4 |

**<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.

- a. 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations
- b. “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
- c. 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                              | $26336 \cdot T_s$                |                                |                                  | $7680 \cdot T_s$                   |                                |                                  |
| 5                              | $6592 \cdot T_s$                 | $4384 \cdot T_s$               | $5120 \cdot T_s$                 | $20480 \cdot T_s$                  | $4384 \cdot T_s$               | $5120 \cdot T_s$                 |
| 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.



<LTE Band 38 Main>

| 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         | 22.95                 | 22.75                    | 22.77                  | 24                  | 0        |
| 20              | QPSK       | 1       | 49        | 22.87                 | 22.86                    | 22.88                  |                     |          |
| 20              | QPSK       | 1       | 99        | 22.84                 | 22.90                    | 22.93                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.15                 | 22.17                    | 22.06                  | 23                  | 1        |
| 20              | QPSK       | 50      | 24        | 22.02                 | 21.96                    | 21.89                  |                     |          |
| 20              | QPSK       | 50      | 50        | 22.11                 | 22.07                    | 22.01                  |                     |          |
| 20              | QPSK       | 100     | 0         | 22.03                 | 22.07                    | 22.00                  |                     |          |
| 20              | 16QAM      | 1       | 0         | 22.02                 | 21.96                    | 21.97                  | 23                  | 1        |
| 20              | 16QAM      | 1       | 49        | 21.94                 | 21.91                    | 21.98                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 21.95                 | 21.97                    | 21.95                  |                     |          |
| 20              | 16QAM      | 50      | 0         | 21.00                 | 21.12                    | 20.99                  | 22                  | 2        |
| 20              | 16QAM      | 50      | 24        | 21.10                 | 21.08                    | 20.94                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 20.95                 | 21.07                    | 20.90                  |                     |          |
| 20              | 16QAM      | 100     | 0         | 21.08                 | 20.94                    | 20.94                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 20.71                 | 20.68                    | 20.61                  | 22                  | 2        |
| 20              | 64QAM      | 1       | 49        | 20.71                 | 20.68                    | 20.64                  |                     |          |
| 20              | 64QAM      | 1       | 99        | 20.75                 | 20.78                    | 20.72                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 19.98                 | 19.99                    | 20.03                  | 21                  | 3        |
| 20              | 64QAM      | 50      | 24        | 20.09                 | 20.04                    | 19.94                  |                     |          |
| 20              | 64QAM      | 50      | 50        | 20.08                 | 20.13                    | 20.03                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 20.07                 | 20.05                    | 20.00                  |                     |          |
| 20              | 256QAM     | 1       | 0         | 19.23                 | 19.26                    | 19.13                  | 20                  | 4        |
| 20              | 256QAM     | 1       | 49        | 19.29                 | 19.28                    | 19.15                  |                     |          |
| 20              | 256QAM     | 1       | 99        | 19.29                 | 19.28                    | 19.32                  |                     |          |
| 20              | 256QAM     | 50      | 0         | 18.56                 | 18.55                    | 18.55                  | 20                  | 4        |
| 20              | 256QAM     | 50      | 24        | 18.66                 | 18.55                    | 18.44                  |                     |          |
| 20              | 256QAM     | 50      | 50        | 18.61                 | 18.71                    | 18.54                  |                     |          |
| 20              | 256QAM     | 100     | 0         | 18.59                 | 18.61                    | 18.53                  |                     |          |
| Channel         |            |         |           | 37825                 | 38000                    | 38175                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2577.5                | 2595                     | 2612.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 22.93                 | 22.75                    | 22.68                  | 24                  | 0        |
| 15              | QPSK       | 1       | 37        | 22.77                 | 22.85                    | 22.86                  |                     |          |
| 15              | QPSK       | 1       | 74        | 22.82                 | 22.82                    | 22.85                  |                     |          |
| 15              | QPSK       | 36      | 0         | 21.89                 | 21.87                    | 21.87                  | 23                  | 1        |
| 15              | QPSK       | 36      | 20        | 21.92                 | 21.95                    | 21.85                  |                     |          |
| 15              | QPSK       | 36      | 39        | 22.03                 | 21.99                    | 21.95                  |                     |          |
| 15              | QPSK       | 75      | 0         | 21.98                 | 22.01                    | 21.96                  |                     |          |
| 15              | 16QAM      | 1       | 0         | 21.98                 | 21.87                    | 21.96                  | 23                  | 1        |
| 15              | 16QAM      | 1       | 37        | 21.85                 | 21.88                    | 21.93                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 21.88                 | 21.94                    | 21.92                  |                     |          |
| 15              | 16QAM      | 36      | 0         | 20.94                 | 21.06                    | 20.98                  | 22                  | 2        |
| 15              | 16QAM      | 36      | 20        | 21.02                 | 21.03                    | 20.89                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 20.89                 | 21.04                    | 20.89                  |                     |          |
| 15              | 16QAM      | 75      | 0         | 21.08                 | 20.91                    | 20.91                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 20.61                 | 20.65                    | 20.59                  | 22                  | 2        |
| 15              | 64QAM      | 1       | 37        | 20.69                 | 20.60                    | 20.59                  |                     |          |
| 15              | 64QAM      | 1       | 74        | 20.73                 | 20.69                    | 20.71                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 19.96                 | 19.91                    | 20.00                  | 21                  | 3        |
| 15              | 64QAM      | 36      | 20        | 20.07                 | 20.01                    | 19.89                  |                     |          |
| 15              | 64QAM      | 36      | 39        | 20.03                 | 20.07                    | 19.97                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 20.03                 | 19.96                    | 19.93                  |                     |          |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |    |    |        |       |        |                     |          |
|-----------------|--------|----|----|--------|-------|--------|---------------------|----------|
| 15              | 256QAM | 1  | 0  | 19.13  | 19.24 | 19.10  | 20                  | 4        |
| 15              | 256QAM | 1  | 37 | 19.28  | 19.13 | 19.15  |                     |          |
| 15              | 256QAM | 1  | 74 | 19.29  | 19.26 | 19.27  |                     |          |
| 15              | 256QAM | 36 | 0  | 18.49  | 18.50 | 18.53  | 20                  | 4        |
| 15              | 256QAM | 36 | 20 | 18.59  | 18.54 | 18.39  |                     |          |
| 15              | 256QAM | 36 | 39 | 18.54  | 18.63 | 18.52  |                     |          |
| 15              | 256QAM | 75 | 0  | 18.62  | 18.56 | 18.51  |                     |          |
| Channel         |        |    |    | 37800  | 38000 | 38200  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 2575   | 2595  | 2615   |                     |          |
| 10              | QPSK   | 1  | 0  | 22.85  | 22.66 | 22.60  | 24                  | 0        |
| 10              | QPSK   | 1  | 25 | 22.70  | 22.79 | 22.76  |                     |          |
| 10              | QPSK   | 1  | 49 | 22.72  | 22.73 | 22.81  |                     |          |
| 10              | QPSK   | 25 | 0  | 21.79  | 21.77 | 21.79  | 23                  | 1        |
| 10              | QPSK   | 25 | 12 | 21.82  | 21.94 | 21.77  |                     |          |
| 10              | QPSK   | 25 | 25 | 21.97  | 21.98 | 21.85  |                     |          |
| 10              | QPSK   | 50 | 0  | 21.96  | 21.92 | 21.90  |                     |          |
| 10              | 16QAM  | 1  | 0  | 21.98  | 21.82 | 21.92  | 23                  | 1        |
| 10              | 16QAM  | 1  | 25 | 21.77  | 21.86 | 21.92  |                     |          |
| 10              | 16QAM  | 1  | 49 | 21.80  | 21.92 | 21.90  |                     |          |
| 10              | 16QAM  | 25 | 0  | 20.84  | 21.00 | 20.92  | 22                  | 2        |
| 10              | 16QAM  | 25 | 12 | 20.99  | 21.03 | 20.89  |                     |          |
| 10              | 16QAM  | 25 | 25 | 20.84  | 21.02 | 20.89  |                     |          |
| 10              | 16QAM  | 50 | 0  | 21.00  | 20.83 | 20.82  |                     |          |
| 10              | 64QAM  | 1  | 0  | 20.55  | 20.61 | 20.58  | 22                  | 2        |
| 10              | 64QAM  | 1  | 25 | 20.59  | 20.58 | 20.52  |                     |          |
| 10              | 64QAM  | 1  | 49 | 20.64  | 20.63 | 20.69  |                     |          |
| 10              | 64QAM  | 25 | 0  | 19.93  | 19.88 | 19.90  | 21                  | 3        |
| 10              | 64QAM  | 25 | 12 | 20.07  | 19.91 | 19.89  |                     |          |
| 10              | 64QAM  | 25 | 25 | 19.93  | 20.05 | 19.94  |                     |          |
| 10              | 64QAM  | 50 | 0  | 19.97  | 19.93 | 19.91  |                     |          |
| 10              | 256QAM | 1  | 0  | 19.10  | 19.12 | 19.18  | 20                  | 4        |
| 10              | 256QAM | 1  | 25 | 19.11  | 19.14 | 19.03  |                     |          |
| 10              | 256QAM | 1  | 49 | 19.14  | 19.22 | 19.20  |                     |          |
| 10              | 256QAM | 25 | 0  | 18.43  | 18.42 | 18.49  | 20                  | 4        |
| 10              | 256QAM | 25 | 12 | 18.63  | 18.50 | 18.46  |                     |          |
| 10              | 256QAM | 25 | 25 | 18.46  | 18.56 | 18.51  |                     |          |
| 10              | 256QAM | 50 | 0  | 18.54  | 18.45 | 18.44  |                     |          |
| Channel         |        |    |    | 37775  | 38000 | 38225  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 2572.5 | 2595  | 2617.5 |                     |          |
| 5               | QPSK   | 1  | 0  | 22.75  | 22.59 | 22.56  | 24                  | 0        |
| 5               | QPSK   | 1  | 12 | 22.62  | 22.76 | 22.66  |                     |          |
| 5               | QPSK   | 1  | 24 | 22.72  | 22.72 | 22.77  |                     |          |
| 5               | QPSK   | 12 | 0  | 21.79  | 21.75 | 21.75  | 23                  | 1        |
| 5               | QPSK   | 12 | 7  | 21.73  | 21.92 | 21.69  |                     |          |
| 5               | QPSK   | 12 | 13 | 21.91  | 21.88 | 21.84  |                     |          |
| 5               | QPSK   | 25 | 0  | 21.94  | 21.86 | 21.80  |                     |          |
| 5               | 16QAM  | 1  | 0  | 21.96  | 21.79 | 21.82  | 23                  | 1        |
| 5               | 16QAM  | 1  | 12 | 21.69  | 21.78 | 21.88  |                     |          |
| 5               | 16QAM  | 1  | 24 | 21.79  | 21.82 | 21.86  |                     |          |
| 5               | 16QAM  | 12 | 0  | 20.82  | 20.99 | 20.82  | 22                  | 2        |
| 5               | 16QAM  | 12 | 7  | 20.98  | 20.98 | 20.84  |                     |          |
| 5               | 16QAM  | 12 | 13 | 20.79  | 20.95 | 20.86  |                     |          |
| 5               | 16QAM  | 25 | 0  | 20.92  | 20.79 | 20.72  |                     |          |
| 5               | 64QAM  | 1  | 0  | 20.50  | 20.60 | 20.56  | 22                  | 2        |
| 5               | 64QAM  | 1  | 12 | 20.58  | 20.55 | 20.45  |                     |          |
| 5               | 64QAM  | 1  | 24 | 20.54  | 20.53 | 20.59  |                     |          |



|   |        |    |    |       |       |       |    |   |
|---|--------|----|----|-------|-------|-------|----|---|
| 5 | 64QAM  | 12 | 0  | 19.93 | 19.85 | 19.88 | 21 | 3 |
| 5 | 64QAM  | 12 | 7  | 20.00 | 19.90 | 19.85 |    |   |
| 5 | 64QAM  | 12 | 13 | 19.91 | 19.97 | 19.89 |    |   |
| 5 | 64QAM  | 25 | 0  | 19.96 | 19.87 | 19.90 | 20 | 4 |
| 5 | 256QAM | 1  | 0  | 19.02 | 19.16 | 19.14 |    |   |
| 5 | 256QAM | 1  | 12 | 19.18 | 19.14 | 18.96 |    |   |
| 5 | 256QAM | 1  | 24 | 19.08 | 19.08 | 19.13 | 20 | 4 |
| 5 | 256QAM | 12 | 0  | 18.45 | 18.41 | 18.47 |    |   |
| 5 | 256QAM | 12 | 7  | 18.51 | 18.40 | 18.37 |    |   |
| 5 | 256QAM | 12 | 13 | 18.49 | 18.48 | 18.48 |    |   |
| 5 | 256QAM | 25 | 0  | 18.54 | 18.41 | 18.43 |    |   |

<LTE Band 41 Main>

| 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                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2506                  | 2549.5                       | 2593                     | 2636.5                        | 2680                   |                     |          |
| 20              | QPSK       | 1       | 0         | 23.03                 | 23.07                        | 22.93                    | 23.01                         | 22.75                  | 24                  | 0        |
| 20              | QPSK       | 1       | 49        | 22.93                 | 22.98                        | 22.93                    | 22.76                         | 22.71                  |                     |          |
| 20              | QPSK       | 1       | 99        | 23.01                 | 22.91                        | 22.85                    | 22.92                         | 22.83                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.25                 | 22.34                        | 22.16                    | 22.08                         | 21.89                  | 23                  | 1        |
| 20              | QPSK       | 50      | 24        | 22.17                 | 22.20                        | 22.11                    | 22.03                         | 21.81                  |                     |          |
| 20              | QPSK       | 50      | 50        | 22.23                 | 22.12                        | 22.02                    | 21.97                         | 21.86                  |                     |          |
| 20              | QPSK       | 100     | 0         | 22.13                 | 22.14                        | 22.11                    | 21.98                         | 21.78                  | 23                  | 1        |
| 20              | 16QAM      | 1       | 0         | 22.20                 | 22.24                        | 22.16                    | 22.05                         | 21.95                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 21.93                 | 22.08                        | 21.96                    | 21.93                         | 21.83                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 22.11                 | 22.14                        | 21.96                    | 21.93                         | 21.88                  | 22                  | 2        |
| 20              | 16QAM      | 50      | 0         | 21.17                 | 20.96                        | 21.04                    | 21.02                         | 20.89                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 21.19                 | 21.20                        | 21.04                    | 21.01                         | 20.84                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 21.25                 | 21.14                        | 21.10                    | 20.96                         | 20.98                  |                     |          |
| 20              | 16QAM      | 100     | 0         | 21.11                 | 21.19                        | 21.17                    | 20.97                         | 20.77                  | 22                  | 2        |
| 20              | 64QAM      | 1       | 0         | 20.90                 | 20.88                        | 20.81                    | 20.81                         | 20.54                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 20.77                 | 20.77                        | 20.67                    | 20.64                         | 20.51                  |                     |          |
| 20              | 64QAM      | 1       | 99        | 20.95                 | 20.80                        | 20.91                    | 20.68                         | 20.53                  | 21                  | 3        |
| 20              | 64QAM      | 50      | 0         | 20.20                 | 20.12                        | 20.13                    | 20.07                         | 19.82                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 20.21                 | 20.24                        | 20.09                    | 19.95                         | 19.92                  |                     |          |
| 20              | 64QAM      | 50      | 50        | 20.27                 | 20.09                        | 20.10                    | 20.01                         | 19.85                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 20.18                 | 20.13                        | 20.12                    | 20.06                         | 19.95                  | 20                  | 4        |
| 20              | 256QAM     | 1       | 0         | 19.44                 | 19.48                        | 19.37                    | 19.32                         | 19.14                  |                     |          |
| 20              | 256QAM     | 1       | 49        | 19.34                 | 19.32                        | 19.25                    | 19.18                         | 19.04                  |                     |          |
| 20              | 256QAM     | 1       | 99        | 19.45                 | 19.30                        | 19.46                    | 19.22                         | 19.08                  | 20                  | 4        |
| 20              | 256QAM     | 50      | 0         | 18.73                 | 18.65                        | 18.68                    | 18.60                         | 18.33                  |                     |          |
| 20              | 256QAM     | 50      | 24        | 18.80                 | 18.74                        | 18.69                    | 18.52                         | 18.48                  |                     |          |
| 20              | 256QAM     | 50      | 50        | 18.80                 | 18.64                        | 18.60                    | 18.54                         | 18.39                  |                     |          |
| 20              | 256QAM     | 100     | 0         | 18.69                 | 18.69                        | 18.62                    | 18.63                         | 18.49                  |                     |          |
| 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         | 22.90                 | 23.03                        | 22.85                    | 22.96                         | 22.72                  | 24                  | 0        |
| 15              | QPSK       | 1       | 37        | 23.03                 | 22.93                        | 22.86                    | 22.74                         | 22.65                  |                     |          |
| 15              | QPSK       | 1       | 74        | 22.91                 | 22.86                        | 22.96                    | 22.83                         | 22.80                  |                     |          |
| 15              | QPSK       | 36      | 0         | 22.15                 | 22.01                        | 21.86                    | 21.93                         | 21.61                  | 23                  | 1        |
| 15              | QPSK       | 36      | 20        | 22.13                 | 22.15                        | 22.02                    | 22.00                         | 21.73                  |                     |          |
| 15              | QPSK       | 36      | 39        | 22.13                 | 22.09                        | 22.02                    | 21.91                         | 21.78                  |                     |          |
| 15              | QPSK       | 75      | 0         | 22.09                 | 22.09                        | 22.09                    | 21.98                         | 21.74                  |                     |          |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |    |    |        |        |       |         |        |                     |          |
|-----------------|--------|----|----|--------|--------|-------|---------|--------|---------------------|----------|
| 15              | 16QAM  | 1  | 0  | 22.11  | 22.18  | 22.12 | 21.99   | 21.93  | 23                  | 1        |
| 15              | 16QAM  | 1  | 37 | 21.91  | 22.00  | 21.96 | 21.87   | 21.83  |                     |          |
| 15              | 16QAM  | 1  | 74 | 22.09  | 22.09  | 21.94 | 21.88   | 21.85  |                     |          |
| 15              | 16QAM  | 36 | 0  | 21.10  | 20.90  | 20.96 | 20.94   | 20.85  | 2                   | 2        |
| 15              | 16QAM  | 36 | 20 | 21.15  | 21.17  | 20.97 | 20.91   | 20.74  |                     |          |
| 15              | 16QAM  | 36 | 39 | 21.17  | 21.04  | 21.10 | 20.92   | 20.94  |                     |          |
| 15              | 16QAM  | 75 | 0  | 21.05  | 21.14  | 21.07 | 20.97   | 20.67  | 2                   | 2        |
| 15              | 64QAM  | 1  | 0  | 20.89  | 20.79  | 20.80 | 20.73   | 20.54  |                     |          |
| 15              | 64QAM  | 1  | 37 | 20.67  | 20.77  | 20.61 | 20.58   | 20.41  |                     |          |
| 15              | 64QAM  | 1  | 74 | 20.86  | 20.77  | 20.85 | 20.58   | 20.49  | 21                  | 3        |
| 15              | 64QAM  | 36 | 0  | 20.19  | 20.09  | 20.12 | 20.05   | 19.78  |                     |          |
| 15              | 64QAM  | 36 | 20 | 20.18  | 20.16  | 20.08 | 19.91   | 19.84  |                     |          |
| 15              | 64QAM  | 36 | 39 | 20.25  | 20.02  | 20.03 | 19.95   | 19.78  | 20                  | 4        |
| 15              | 64QAM  | 75 | 0  | 20.09  | 20.03  | 20.02 | 20.04   | 19.87  |                     |          |
| 15              | 256QAM | 1  | 0  | 19.45  | 19.35  | 19.37 | 19.32   | 19.10  |                     |          |
| 15              | 256QAM | 1  | 37 | 19.22  | 19.33  | 19.13 | 19.15   | 18.97  | 20                  | 4        |
| 15              | 256QAM | 1  | 74 | 19.36  | 19.31  | 19.43 | 19.16   | 18.99  |                     |          |
| 15              | 256QAM | 36 | 0  | 18.71  | 18.66  | 18.67 | 18.65   | 18.34  |                     |          |
| 15              | 256QAM | 36 | 20 | 18.74  | 18.68  | 18.59 | 18.46   | 18.42  | 20                  | 4        |
| 15              | 256QAM | 36 | 39 | 18.75  | 18.55  | 18.61 | 18.53   | 18.38  |                     |          |
| 15              | 256QAM | 75 | 0  | 18.63  | 18.56  | 18.62 | 18.62   | 18.41  |                     |          |
| Channel         |        |    |    | 39700  | 40160  | 40620 | 41080   | 41540  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 2501   | 2547   | 2593  | 2639    | 2685   |                     |          |
| 10              | QPSK   | 1  | 0  | 22.87  | 22.96  | 22.81 | 22.89   | 22.64  | 24                  | 0        |
| 10              | QPSK   | 1  | 25 | 22.94  | 22.84  | 22.79 | 22.64   | 22.61  |                     |          |
| 10              | QPSK   | 1  | 49 | 22.81  | 22.85  | 22.87 | 22.78   | 22.76  |                     |          |
| 10              | QPSK   | 25 | 0  | 22.15  | 21.94  | 21.82 | 21.90   | 21.59  | 23                  | 1        |
| 10              | QPSK   | 25 | 12 | 22.07  | 22.10  | 21.99 | 21.97   | 21.68  |                     |          |
| 10              | QPSK   | 25 | 25 | 22.10  | 22.09  | 22.02 | 21.81   | 21.68  |                     |          |
| 10              | QPSK   | 50 | 0  | 22.05  | 22.05  | 22.08 | 21.88   | 21.72  | 23                  | 1        |
| 10              | 16QAM  | 1  | 0  | 22.02  | 22.09  | 22.06 | 21.91   | 21.85  |                     |          |
| 10              | 16QAM  | 1  | 25 | 21.89  | 21.92  | 21.93 | 21.81   | 21.80  |                     |          |
| 10              | 16QAM  | 1  | 49 | 22.05  | 22.08  | 21.85 | 21.83   | 21.84  | 22                  | 2        |
| 10              | 16QAM  | 25 | 0  | 21.00  | 20.89  | 20.88 | 20.91   | 20.82  |                     |          |
| 10              | 16QAM  | 25 | 12 | 21.10  | 21.13  | 20.95 | 20.90   | 20.71  |                     |          |
| 10              | 16QAM  | 25 | 25 | 21.11  | 21.03  | 21.03 | 20.88   | 20.91  | 22                  | 2        |
| 10              | 16QAM  | 50 | 0  | 21.04  | 21.12  | 20.98 | 20.97   | 20.60  |                     |          |
| 10              | 64QAM  | 1  | 0  | 20.82  | 20.75  | 20.77 | 20.70   | 20.52  |                     |          |
| 10              | 64QAM  | 1  | 25 | 20.64  | 20.73  | 20.55 | 20.48   | 20.31  | 21                  | 3        |
| 10              | 64QAM  | 1  | 49 | 20.77  | 20.68  | 20.76 | 20.51   | 20.47  |                     |          |
| 10              | 64QAM  | 25 | 0  | 20.19  | 20.03  | 20.06 | 20.01   | 19.70  |                     |          |
| 10              | 64QAM  | 25 | 12 | 20.18  | 20.11  | 20.03 | 19.86   | 19.77  | 20                  | 4        |
| 10              | 64QAM  | 25 | 25 | 20.22  | 19.98  | 19.93 | 19.92   | 19.78  |                     |          |
| 10              | 64QAM  | 50 | 0  | 19.99  | 20.00  | 19.98 | 19.95   | 19.78  |                     |          |
| 10              | 256QAM | 1  | 0  | 19.38  | 19.34  | 19.27 | 19.24   | 19.07  | 20                  | 4        |
| 10              | 256QAM | 1  | 25 | 19.17  | 19.24  | 19.08 | 19.08   | 18.81  |                     |          |
| 10              | 256QAM | 1  | 49 | 19.30  | 19.26  | 19.31 | 19.07   | 18.97  |                     |          |
| 10              | 256QAM | 25 | 0  | 18.79  | 18.63  | 18.60 | 18.52   | 18.22  | 20                  | 4        |
| 10              | 256QAM | 25 | 12 | 18.71  | 18.65  | 18.58 | 18.38   | 18.29  |                     |          |
| 10              | 256QAM | 25 | 25 | 18.74  | 18.53  | 18.50 | 18.44   | 18.31  |                     |          |
| 10              | 256QAM | 50 | 0  | 18.59  | 18.52  | 18.56 | 18.48   | 18.32  | 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  | 22.83  | 22.94  | 22.75 | 22.83   | 22.55  | 24                  | 0        |
| 5               | QPSK   | 1  | 12 | 22.87  | 22.84  | 22.69 | 22.55   | 22.54  |                     |          |
| 5               | QPSK   | 1  | 24 | 22.74  | 22.84  | 22.81 | 22.78   | 22.73  |                     |          |



|   |        |    |    |       |       |       |       |       |    |   |
|---|--------|----|----|-------|-------|-------|-------|-------|----|---|
| 5 | QPSK   | 12 | 0  | 22.14 | 21.91 | 21.74 | 21.90 | 21.57 | 23 | 1 |
| 5 | QPSK   | 12 | 7  | 21.99 | 22.07 | 21.98 | 21.88 | 21.62 |    |   |
| 5 | QPSK   | 12 | 13 | 22.07 | 22.01 | 21.93 | 21.76 | 21.66 |    |   |
| 5 | QPSK   | 25 | 0  | 21.97 | 22.02 | 21.98 | 21.78 | 21.65 | 23 | 1 |
| 5 | 16QAM  | 1  | 0  | 22.00 | 22.03 | 21.96 | 21.91 | 21.78 |    |   |
| 5 | 16QAM  | 1  | 12 | 21.85 | 21.90 | 21.91 | 21.79 | 21.70 |    |   |
| 5 | 16QAM  | 1  | 24 | 22.05 | 22.06 | 21.78 | 21.75 | 21.83 | 22 | 2 |
| 5 | 16QAM  | 12 | 0  | 21.00 | 20.79 | 20.81 | 20.91 | 20.82 |    |   |
| 5 | 16QAM  | 12 | 7  | 21.06 | 21.10 | 20.88 | 20.86 | 20.68 |    |   |
| 5 | 16QAM  | 12 | 13 | 21.03 | 21.00 | 20.97 | 20.85 | 20.81 | 22 | 2 |
| 5 | 16QAM  | 25 | 0  | 20.97 | 21.02 | 20.96 | 20.89 | 20.54 |    |   |
| 5 | 64QAM  | 1  | 0  | 20.81 | 20.74 | 20.75 | 20.63 | 20.52 |    |   |
| 5 | 64QAM  | 1  | 12 | 20.56 | 20.71 | 20.46 | 20.41 | 20.22 | 22 | 2 |
| 5 | 64QAM  | 1  | 24 | 20.75 | 20.59 | 20.71 | 20.48 | 20.39 |    |   |
| 5 | 64QAM  | 12 | 0  | 20.16 | 20.02 | 19.97 | 19.99 | 19.68 |    |   |
| 5 | 64QAM  | 12 | 7  | 20.17 | 20.11 | 19.99 | 19.80 | 19.71 | 21 | 3 |
| 5 | 64QAM  | 12 | 13 | 20.21 | 19.88 | 19.87 | 19.92 | 19.77 |    |   |
| 5 | 64QAM  | 25 | 0  | 19.90 | 20.00 | 19.92 | 19.94 | 19.70 |    |   |
| 5 | 256QAM | 1  | 0  | 19.33 | 19.29 | 19.31 | 19.23 | 19.08 | 20 | 4 |
| 5 | 256QAM | 1  | 12 | 19.11 | 19.27 | 19.01 | 18.97 | 18.73 |    |   |
| 5 | 256QAM | 1  | 24 | 19.29 | 19.10 | 19.29 | 19.04 | 18.90 |    |   |
| 5 | 256QAM | 12 | 0  | 18.72 | 18.57 | 18.55 | 18.54 | 18.20 | 20 | 4 |
| 5 | 256QAM | 12 | 7  | 18.74 | 18.69 | 18.57 | 18.31 | 18.21 |    |   |
| 5 | 256QAM | 12 | 13 | 18.80 | 18.44 | 18.44 | 18.46 | 18.29 |    |   |
| 5 | 256QAM | 25 | 0  | 18.40 | 18.59 | 18.46 | 18.54 | 18.20 |    |   |

<LTE Band 41 HPUE Main>

| 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                  | 27                  | 0        |
| Frequency (MHz) |            |         |           | 2506                  | 2549.5                       | 2593                     | 2636.5                        | 2680                   |                     |          |
| 20              | QPSK       | 1       | 0         | 25.64                 | 25.69                        | 25.67                    | 25.60                         | 25.27                  | 27                  | 0        |
| 20              | QPSK       | 1       | 49        | 25.60                 | 25.65                        | 25.56                    | 25.46                         | 25.05                  |                     |          |
| 20              | QPSK       | 1       | 99        | 25.64                 | 25.62                        | 25.68                    | 25.52                         | 24.36                  |                     |          |
| 20              | QPSK       | 50      | 0         | 24.90                 | 24.96                        | 24.91                    | 24.81                         | 24.52                  | 26                  | 1        |
| 20              | QPSK       | 50      | 24        | 24.89                 | 24.93                        | 24.88                    | 24.78                         | 24.16                  |                     |          |
| 20              | QPSK       | 50      | 50        | 24.84                 | 24.87                        | 24.89                    | 24.68                         | 23.98                  |                     |          |
| 20              | QPSK       | 100     | 0         | 24.97                 | 24.99                        | 24.84                    | 24.75                         | 24.12                  | 26                  | 1        |
| 20              | 16QAM      | 1       | 0         | 25.06                 | 24.88                        | 24.89                    | 24.92                         | 24.63                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 24.98                 | 24.96                        | 24.92                    | 24.86                         | 24.36                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 25.04                 | 24.96                        | 24.93                    | 25.06                         | 23.62                  | 25                  | 2        |
| 20              | 16QAM      | 50      | 0         | 23.96                 | 23.87                        | 23.83                    | 23.79                         | 23.49                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 24.00                 | 23.97                        | 23.94                    | 23.78                         | 23.32                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 23.96                 | 23.90                        | 23.81                    | 23.75                         | 22.93                  | 25                  | 2        |
| 20              | 16QAM      | 100     | 0         | 23.98                 | 23.97                        | 23.94                    | 23.81                         | 23.16                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 23.89                 | 23.75                        | 23.45                    | 23.39                         | 22.55                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 23.88                 | 23.87                        | 23.40                    | 23.65                         | 22.41                  | 25                  | 2        |
| 20              | 64QAM      | 1       | 99        | 23.89                 | 23.86                        | 23.33                    | 23.49                         | 21.65                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 23.06                 | 22.95                        | 22.48                    | 22.59                         | 21.66                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 22.96                 | 22.95                        | 22.44                    | 22.64                         | 21.36                  | 24                  | 3        |
| 20              | 64QAM      | 50      | 50        | 22.93                 | 22.97                        | 22.43                    | 22.64                         | 20.88                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 23.05                 | 23.02                        | 22.35                    | 22.56                         | 21.14                  |                     |          |
| 20              | 256QAM     | 1       | 0         | 22.46                 | 22.35                        | 22.03                    | 21.95                         | 21.05                  | 23                  | 4        |
| 20              | 256QAM     | 1       | 49        | 22.43                 | 22.46                        | 21.99                    | 22.16                         | 21.04                  |                     |          |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |     |    |        |        |       |        |        |                     |          |
|-----------------|--------|-----|----|--------|--------|-------|--------|--------|---------------------|----------|
| 20              | 256QAM | 1   | 99 | 22.48  | 22.38  | 21.87 | 22.04  | 21.16  |                     |          |
| 20              | 256QAM | 50  | 0  | 21.66  | 21.45  | 21.39 | 21.12  | 21.23  | 23                  | 4        |
| 20              | 256QAM | 50  | 24 | 21.54  | 21.55  | 21.36 | 21.19  | 21.50  |                     |          |
| 20              | 256QAM | 50  | 50 | 21.45  | 21.55  | 21.36 | 21.19  | 21.02  |                     |          |
| 20              | 256QAM | 100 | 0  | 21.65  | 21.59  | 21.34 | 21.06  | 21.08  |                     |          |
| 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  | 25.56  | 25.69  | 25.66 | 25.52  | 25.17  | 27                  | 0        |
| 15              | QPSK   | 1   | 37 | 25.57  | 25.58  | 25.46 | 25.40  | 24.96  |                     |          |
| 15              | QPSK   | 1   | 74 | 25.63  | 25.58  | 25.63 | 25.43  | 24.28  |                     |          |
| 15              | QPSK   | 36  | 0  | 24.84  | 24.84  | 24.73 | 24.70  | 24.46  | 26                  | 1        |
| 15              | QPSK   | 36  | 20 | 24.83  | 24.90  | 24.87 | 24.73  | 24.08  |                     |          |
| 15              | QPSK   | 36  | 39 | 24.74  | 24.87  | 24.82 | 24.58  | 23.97  |                     |          |
| 15              | QPSK   | 75  | 0  | 24.93  | 24.94  | 24.83 | 24.71  | 24.09  |                     |          |
| 15              | 16QAM  | 1   | 0  | 24.96  | 24.84  | 24.82 | 24.90  | 24.58  | 26                  | 1        |
| 15              | 16QAM  | 1   | 37 | 24.92  | 24.91  | 24.92 | 24.76  | 24.28  |                     |          |
| 15              | 16QAM  | 1   | 74 | 25.03  | 24.86  | 24.87 | 25.03  | 23.54  |                     |          |
| 15              | 16QAM  | 36  | 0  | 23.86  | 23.79  | 23.77 | 23.73  | 23.45  | 25                  | 2        |
| 15              | 16QAM  | 36  | 20 | 23.93  | 23.97  | 23.94 | 23.75  | 23.23  |                     |          |
| 15              | 16QAM  | 36  | 39 | 23.88  | 23.90  | 23.72 | 23.65  | 22.84  |                     |          |
| 15              | 16QAM  | 75  | 0  | 23.91  | 23.95  | 23.89 | 23.81  | 23.13  |                     |          |
| 15              | 64QAM  | 1   | 0  | 23.84  | 23.65  | 23.42 | 23.39  | 22.50  | 25                  | 2        |
| 15              | 64QAM  | 1   | 37 | 23.83  | 23.85  | 23.31 | 23.64  | 22.34  |                     |          |
| 15              | 64QAM  | 1   | 74 | 23.88  | 23.79  | 23.24 | 23.42  | 21.61  |                     |          |
| 15              | 64QAM  | 36  | 0  | 22.99  | 22.91  | 22.38 | 22.58  | 21.62  | 24                  | 3        |
| 15              | 64QAM  | 36  | 20 | 22.90  | 22.88  | 22.35 | 22.61  | 21.32  |                     |          |
| 15              | 64QAM  | 36  | 39 | 22.87  | 22.91  | 22.39 | 22.58  | 20.78  |                     |          |
| 15              | 64QAM  | 75  | 0  | 23.00  | 23.00  | 22.26 | 22.56  | 21.12  |                     |          |
| 15              | 256QAM | 1   | 0  | 22.37  | 22.23  | 21.95 | 21.95  | 21.01  | 23                  | 4        |
| 15              | 256QAM | 1   | 37 | 22.39  | 22.36  | 21.87 | 22.16  | 21.01  |                     |          |
| 15              | 256QAM | 1   | 74 | 22.41  | 22.35  | 21.83 | 21.97  | 21.09  |                     |          |
| 15              | 256QAM | 36  | 0  | 21.58  | 21.51  | 21.37 | 21.10  | 21.09  | 23                  | 4        |
| 15              | 256QAM | 36  | 20 | 21.50  | 21.46  | 21.31 | 21.21  | 21.09  |                     |          |
| 15              | 256QAM | 36  | 39 | 21.39  | 21.49  | 21.37 | 21.18  | 21.03  |                     |          |
| 15              | 256QAM | 75  | 0  | 21.51  | 21.56  | 21.30 | 21.12  | 21.08  |                     |          |
| Channel         |        |     |    | 39700  | 40160  |       | 41080  | 41540  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |     |    | 2501   | 2547   | 2593  | 2639   | 2685   |                     |          |
| 10              | QPSK   | 1   | 0  | 25.56  | 25.65  | 25.56 | 25.50  | 25.09  | 27                  | 0        |
| 10              | QPSK   | 1   | 25 | 25.52  | 25.50  | 25.44 | 25.34  | 24.92  |                     |          |
| 10              | QPSK   | 1   | 49 | 25.57  | 25.51  | 25.53 | 25.39  | 24.20  |                     |          |
| 10              | QPSK   | 25  | 0  | 24.78  | 24.78  | 24.65 | 24.64  | 24.45  | 26                  | 1        |
| 10              | QPSK   | 25  | 12 | 24.80  | 24.90  | 24.82 | 24.71  | 24.00  |                     |          |
| 10              | QPSK   | 25  | 25 | 24.74  | 24.81  | 24.74 | 24.48  | 23.88  |                     |          |
| 10              | QPSK   | 50  | 0  | 24.93  | 24.85  | 24.74 | 24.63  | 24.03  |                     |          |
| 10              | 16QAM  | 1   | 0  | 24.94  | 24.82  | 24.79 | 24.82  | 24.49  | 26                  | 1        |
| 10              | 16QAM  | 1   | 25 | 24.82  | 24.82  | 24.84 | 24.67  | 24.26  |                     |          |
| 10              | 16QAM  | 1   | 49 | 25.03  | 24.85  | 24.87 | 24.99  | 23.51  |                     |          |
| 10              | 16QAM  | 25  | 0  | 23.81  | 23.75  | 23.71 | 23.63  | 23.41  | 25                  | 2        |
| 10              | 16QAM  | 25  | 12 | 23.85  | 23.88  | 23.88 | 23.73  | 23.18  |                     |          |
| 10              | 16QAM  | 25  | 25 | 23.85  | 23.88  | 23.64 | 23.62  | 22.78  |                     |          |
| 10              | 16QAM  | 50  | 0  | 23.90  | 23.93  | 23.80 | 23.78  | 23.11  |                     |          |
| 10              | 64QAM  | 1   | 0  | 23.74  | 23.57  | 23.41 | 23.31  | 22.42  | 25                  | 2        |
| 10              | 64QAM  | 1   | 25 | 23.73  | 23.78  | 23.25 | 23.64  | 22.26  |                     |          |
| 10              | 64QAM  | 1   | 49 | 23.87  | 23.76  | 23.23 | 23.42  | 21.52  |                     |          |
| 10              | 64QAM  | 25  | 0  | 22.99  | 22.85  | 22.29 | 22.49  | 21.57  | 24                  | 3        |
| 10              | 64QAM  | 25  | 12 | 22.88  | 22.79  | 22.34 | 22.59  | 21.28  |                     |          |



|                 |        |    |    |        |        |       |         |        |                     |          |
|-----------------|--------|----|----|--------|--------|-------|---------|--------|---------------------|----------|
| 10              | 64QAM  | 25 | 25 | 22.78  | 22.91  | 22.29 | 22.50   | 20.77  |                     |          |
| 10              | 64QAM  | 50 | 0  | 23.00  | 22.96  | 22.19 | 22.55   | 21.03  |                     |          |
| 10              | 256QAM | 1  | 0  | 22.36  | 22.21  | 21.86 | 21.89   | 21.01  |                     |          |
| 10              | 256QAM | 1  | 25 | 22.29  | 22.27  | 21.82 | 22.06   | 21.15  | 23                  | 4        |
| 10              | 256QAM | 1  | 49 | 22.39  | 22.34  | 21.81 | 21.97   | 21.05  |                     |          |
| 10              | 256QAM | 25 | 0  | 21.50  | 21.41  | 21.27 | 21.06   | 21.03  |                     |          |
| 10              | 256QAM | 25 | 12 | 21.41  | 21.36  | 21.25 | 21.17   | 21.02  | 23                  | 4        |
| 10              | 256QAM | 25 | 25 | 21.37  | 21.43  | 21.27 | 21.11   | 21.03  |                     |          |
| 10              | 256QAM | 50 | 0  | 21.51  | 21.49  | 21.09 | 21.02   | 21.08  |                     |          |
| Channel         |        |    |    | 39675  | 40148  | 40620 | 41093   | 41565  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 2498.5 | 2545.8 | 2593  | 2640.30 | 2687.5 |                     |          |
| 5               | QPSK   | 1  | 0  | 25.53  | 25.64  | 25.58 | 25.33   | 25.16  | 27                  | 0        |
| 5               | QPSK   | 1  | 12 | 25.50  | 25.45  | 25.36 | 25.23   | 24.86  |                     |          |
| 5               | QPSK   | 1  | 24 | 25.47  | 25.41  | 25.45 | 25.35   | 24.16  |                     |          |
| 5               | QPSK   | 12 | 0  | 24.73  | 24.82  | 24.69 | 24.60   | 24.30  | 26                  | 1        |
| 5               | QPSK   | 12 | 7  | 24.80  | 24.74  | 24.77 | 24.62   | 24.03  |                     |          |
| 5               | QPSK   | 12 | 13 | 24.62  | 24.77  | 24.70 | 24.52   | 23.81  |                     |          |
| 5               | QPSK   | 25 | 0  | 24.91  | 24.75  | 24.70 | 24.56   | 23.97  | 26                  | 1        |
| 5               | 16QAM  | 1  | 0  | 24.88  | 24.73  | 24.79 | 24.86   | 24.45  |                     |          |
| 5               | 16QAM  | 1  | 12 | 24.80  | 24.81  | 24.87 | 24.64   | 24.13  |                     |          |
| 5               | 16QAM  | 1  | 24 | 24.89  | 24.80  | 24.76 | 24.93   | 23.46  | 25                  | 2        |
| 5               | 16QAM  | 12 | 0  | 23.73  | 23.65  | 23.70 | 23.64   | 23.35  |                     |          |
| 5               | 16QAM  | 12 | 7  | 23.88  | 23.96  | 23.86 | 23.75   | 23.18  |                     |          |
| 5               | 16QAM  | 12 | 13 | 23.79  | 23.77  | 23.69 | 23.50   | 22.82  | 25                  | 2        |
| 5               | 16QAM  | 25 | 0  | 23.85  | 23.84  | 23.74 | 23.67   | 23.10  |                     |          |
| 5               | 64QAM  | 1  | 0  | 23.67  | 23.55  | 23.40 | 23.23   | 22.37  |                     |          |
| 5               | 64QAM  | 1  | 12 | 23.73  | 23.72  | 23.23 | 23.50   | 22.25  | 25                  | 2        |
| 5               | 64QAM  | 1  | 24 | 23.76  | 23.65  | 23.19 | 23.33   | 21.51  |                     |          |
| 5               | 64QAM  | 12 | 0  | 22.86  | 22.86  | 22.21 | 22.42   | 21.52  |                     |          |
| 5               | 64QAM  | 12 | 7  | 22.76  | 22.80  | 22.31 | 22.52   | 21.17  | 24                  | 3        |
| 5               | 64QAM  | 12 | 13 | 22.80  | 22.82  | 22.37 | 22.49   | 20.74  |                     |          |
| 5               | 64QAM  | 25 | 0  | 22.91  | 22.85  | 22.12 | 22.46   | 21.03  |                     |          |
| 5               | 256QAM | 1  | 0  | 22.27  | 22.22  | 21.89 | 21.91   | 21.00  | 23                  | 4        |
| 5               | 256QAM | 1  | 12 | 22.34  | 22.35  | 21.86 | 22.14   | 21.16  |                     |          |
| 5               | 256QAM | 1  | 24 | 22.34  | 22.35  | 21.75 | 21.92   | 21.04  |                     |          |
| 5               | 256QAM | 12 | 0  | 21.52  | 21.42  | 21.17 | 21.02   | 21.05  | 23                  | 4        |
| 5               | 256QAM | 12 | 7  | 21.50  | 21.45  | 21.18 | 21.11   | 21.10  |                     |          |
| 5               | 256QAM | 12 | 13 | 21.35  | 21.39  | 21.22 | 21.08   | 21.10  |                     |          |
| 5               | 256QAM | 25 | 0  | 21.47  | 21.48  | 21.15 | 21.02   | 21.07  |                     |          |

<LTE Band 42 Aux 2>

| 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         |            |         |           | 43190                 | 43340                    | 43490                  |                     |          |
| Frequency (MHz) |            |         |           | 3560                  | 3575                     | 3590                   |                     |          |
| 20              | QPSK       | 1       | 0         | 20.35                 | 20.39                    | 20.28                  | 22                  | 0        |
| 20              | QPSK       | 1       | 49        | 20.25                 | 20.36                    | 20.22                  |                     |          |
| 20              | QPSK       | 1       | 99        | 20.23                 | 20.23                    | 20.13                  |                     |          |
| 20              | QPSK       | 50      | 0         | 19.43                 | 19.48                    | 19.33                  | 21                  | 1        |
| 20              | QPSK       | 50      | 24        | 19.32                 | 19.28                    | 19.29                  |                     |          |
| 20              | QPSK       | 50      | 50        | 19.28                 | 19.30                    | 19.21                  |                     |          |
| 20              | QPSK       | 100     | 0         | 19.43                 | 19.39                    | 19.30                  | 21                  | 1        |
| 20              | 16QAM      | 1       | 0         | 19.58                 | 19.47                    | 19.30                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 19.34                 | 19.38                    | 19.42                  |                     |          |





**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |     |    |        |       |        |                     |          |
|-----------------|--------|-----|----|--------|-------|--------|---------------------|----------|
| 20              | 16QAM  | 1   | 99 | 19.28  | 19.34 | 19.27  |                     |          |
| 20              | 16QAM  | 50  | 0  | 18.51  | 18.38 | 18.42  | 20                  | 2        |
| 20              | 16QAM  | 50  | 24 | 18.39  | 18.43 | 18.33  |                     |          |
| 20              | 16QAM  | 50  | 50 | 18.33  | 18.31 | 18.32  |                     |          |
| 20              | 16QAM  | 100 | 0  | 18.35  | 18.27 | 18.35  |                     |          |
| 20              | 64QAM  | 1   | 0  | 18.16  | 18.13 | 18.02  | 20                  | 2        |
| 20              | 64QAM  | 1   | 49 | 18.20  | 18.14 | 18.03  |                     |          |
| 20              | 64QAM  | 1   | 99 | 18.10  | 18.25 | 18.23  |                     |          |
| 20              | 64QAM  | 50  | 0  | 17.49  | 17.40 | 17.32  | 19                  | 3        |
| 20              | 64QAM  | 50  | 24 | 17.38  | 17.38 | 17.29  |                     |          |
| 20              | 64QAM  | 50  | 50 | 17.29  | 17.29 | 17.37  |                     |          |
| 20              | 64QAM  | 100 | 0  | 17.42  | 17.29 | 17.42  |                     |          |
| 20              | 256QAM | 1   | 0  | 16.69  | 16.70 | 16.55  | 18                  | 4        |
| 20              | 256QAM | 1   | 49 | 16.76  | 16.69 | 16.57  |                     |          |
| 20              | 256QAM | 1   | 99 | 16.64  | 16.85 | 16.73  |                     |          |
| 20              | 256QAM | 50  | 0  | 16.40  | 16.46 | 16.46  | 18                  | 4        |
| 20              | 256QAM | 50  | 24 | 16.43  | 16.47 | 16.46  |                     |          |
| 20              | 256QAM | 50  | 50 | 16.41  | 16.47 | 16.47  |                     |          |
| 20              | 256QAM | 100 | 0  | 16.42  | 16.39 | 16.37  |                     |          |
| Channel         |        |     |    | 43165  | 43340 | 43515  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |     |    | 3557.5 | 3575  | 3592.5 |                     |          |
| 15              | QPSK   | 1   | 0  | 20.29  | 20.33 | 20.27  | 22                  | 0        |
| 15              | QPSK   | 1   | 37 | 20.15  | 20.28 | 20.14  |                     |          |
| 15              | QPSK   | 1   | 74 | 20.19  | 20.15 | 20.05  |                     |          |
| 15              | QPSK   | 36  | 0  | 19.34  | 19.39 | 19.29  | 21                  | 1        |
| 15              | QPSK   | 36  | 20 | 19.27  | 19.24 | 19.20  |                     |          |
| 15              | QPSK   | 36  | 39 | 19.28  | 19.20 | 19.11  |                     |          |
| 15              | QPSK   | 75  | 0  | 19.41  | 19.31 | 19.23  |                     |          |
| 15              | 16QAM  | 1   | 0  | 19.56  | 19.43 | 19.22  | 21                  | 1        |
| 15              | 16QAM  | 1   | 37 | 19.26  | 19.37 | 19.42  |                     |          |
| 15              | 16QAM  | 1   | 74 | 19.23  | 19.33 | 19.21  |                     |          |
| 15              | 16QAM  | 36  | 0  | 18.49  | 18.35 | 18.35  | 20                  | 2        |
| 15              | 16QAM  | 36  | 20 | 18.29  | 18.38 | 18.30  |                     |          |
| 15              | 16QAM  | 36  | 39 | 18.23  | 18.28 | 18.28  |                     |          |
| 15              | 16QAM  | 75  | 0  | 18.26  | 18.21 | 18.32  |                     |          |
| 15              | 64QAM  | 1   | 0  | 18.07  | 18.09 | 18.00  | 20                  | 2        |
| 15              | 64QAM  | 1   | 37 | 18.18  | 18.09 | 18.23  |                     |          |
| 15              | 64QAM  | 1   | 74 | 18.04  | 18.18 | 18.16  |                     |          |
| 15              | 64QAM  | 36  | 0  | 17.40  | 17.36 | 17.27  | 19                  | 3        |
| 15              | 64QAM  | 36  | 20 | 17.36  | 17.38 | 17.27  |                     |          |
| 15              | 64QAM  | 36  | 39 | 17.22  | 17.29 | 17.30  |                     |          |
| 15              | 64QAM  | 75  | 0  | 17.37  | 17.27 | 17.38  |                     |          |
| 15              | 256QAM | 1   | 0  | 16.66  | 16.66 | 16.58  | 18                  | 4        |
| 15              | 256QAM | 1   | 37 | 16.68  | 16.59 | 16.74  |                     |          |
| 15              | 256QAM | 1   | 74 | 16.55  | 16.73 | 16.71  |                     |          |
| 15              | 256QAM | 36  | 0  | 16.46  | 16.40 | 16.38  | 18                  | 4        |
| 15              | 256QAM | 36  | 20 | 16.37  | 16.44 | 16.43  |                     |          |
| 15              | 256QAM | 36  | 39 | 16.45  | 16.43 | 16.46  |                     |          |
| 15              | 256QAM | 75  | 0  | 16.46  | 16.40 | 16.39  |                     |          |
| Channel         |        |     |    | 43140  | 43340 | 43540  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |     |    | 3555   | 3575  | 3595   |                     |          |
| 10              | QPSK   | 1   | 0  | 20.32  | 20.38 | 20.18  | 22                  | 0        |
| 10              | QPSK   | 1   | 25 | 20.22  | 20.30 | 20.15  |                     |          |
| 10              | QPSK   | 1   | 49 | 20.19  | 20.13 | 20.04  |                     |          |
| 10              | QPSK   | 25  | 0  | 19.36  | 19.39 | 19.23  | 21                  | 1        |
| 10              | QPSK   | 25  | 12 | 19.22  | 19.27 | 19.25  |                     |          |



|                 |        |    |    |        |       |        |                        |             |
|-----------------|--------|----|----|--------|-------|--------|------------------------|-------------|
| 10              | QPSK   | 25 | 25 | 19.24  | 19.30 | 19.15  |                        |             |
| 10              | QPSK   | 50 | 0  | 19.37  | 19.38 | 19.30  |                        |             |
| 10              | 16QAM  | 1  | 0  | 19.56  | 19.46 | 19.23  | 21                     | 1           |
| 10              | 16QAM  | 1  | 25 | 19.34  | 19.35 | 19.32  |                        |             |
| 10              | 16QAM  | 1  | 49 | 19.24  | 19.24 | 19.17  |                        |             |
| 10              | 16QAM  | 25 | 0  | 18.50  | 18.38 | 18.39  | 20                     | 2           |
| 10              | 16QAM  | 25 | 12 | 18.39  | 18.33 | 18.26  |                        |             |
| 10              | 16QAM  | 25 | 25 | 18.32  | 18.25 | 18.28  |                        |             |
| 10              | 16QAM  | 50 | 0  | 18.27  | 18.21 | 18.32  |                        |             |
| 10              | 64QAM  | 1  | 0  | 18.13  | 18.06 | 18.00  | 20                     | 2           |
| 10              | 64QAM  | 1  | 25 | 18.20  | 18.08 | 18.02  |                        |             |
| 10              | 64QAM  | 1  | 49 | 18.09  | 18.17 | 18.13  |                        |             |
| 10              | 64QAM  | 25 | 0  | 17.46  | 17.40 | 17.31  | 19                     | 3           |
| 10              | 64QAM  | 25 | 12 | 17.38  | 17.34 | 17.24  |                        |             |
| 10              | 64QAM  | 25 | 25 | 17.20  | 17.22 | 17.27  |                        |             |
| 10              | 64QAM  | 50 | 0  | 17.37  | 17.25 | 17.38  |                        |             |
| 10              | 256QAM | 1  | 0  | 16.68  | 16.59 | 16.60  | 18                     | 4           |
| 10              | 256QAM | 1  | 25 | 16.71  | 16.62 | 16.57  |                        |             |
| 10              | 256QAM | 1  | 49 | 16.68  | 16.68 | 16.71  |                        |             |
| 10              | 256QAM | 25 | 0  | 16.44  | 16.42 | 16.39  | 18                     | 4           |
| 10              | 256QAM | 25 | 12 | 16.43  | 16.43 | 16.43  |                        |             |
| 10              | 256QAM | 25 | 25 | 16.40  | 16.44 | 16.45  |                        |             |
| 10              | 256QAM | 50 | 0  | 16.42  | 16.44 | 16.43  |                        |             |
| Channel         |        |    |    | 43115  | 43340 | 43565  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |        |    |    | 3552.5 | 3575  | 3597.5 |                        |             |
| 5               | QPSK   | 1  | 0  | 20.27  | 20.29 | 20.25  | 22                     | 0           |
| 5               | QPSK   | 1  | 12 | 20.25  | 20.26 | 20.21  |                        |             |
| 5               | QPSK   | 1  | 24 | 20.16  | 20.22 | 20.05  |                        |             |
| 5               | QPSK   | 12 | 0  | 19.42  | 19.41 | 19.29  | 21                     | 1           |
| 5               | QPSK   | 12 | 7  | 19.26  | 19.20 | 19.20  |                        |             |
| 5               | QPSK   | 12 | 13 | 19.22  | 19.24 | 19.14  |                        |             |
| 5               | QPSK   | 25 | 0  | 19.36  | 19.31 | 19.28  |                        |             |
| 5               | 16QAM  | 1  | 0  | 19.52  | 19.42 | 19.22  | 21                     | 1           |
| 5               | 16QAM  | 1  | 12 | 19.24  | 19.30 | 19.36  |                        |             |
| 5               | 16QAM  | 1  | 24 | 19.28  | 19.34 | 19.18  |                        |             |
| 5               | 16QAM  | 12 | 0  | 18.41  | 18.28 | 18.38  | 20                     | 2           |
| 5               | 16QAM  | 12 | 7  | 18.38  | 18.38 | 18.26  |                        |             |
| 5               | 16QAM  | 12 | 13 | 18.28  | 18.22 | 18.28  |                        |             |
| 5               | 16QAM  | 25 | 0  | 18.30  | 18.17 | 18.32  |                        |             |
| 5               | 64QAM  | 1  | 0  | 18.10  | 18.04 | 18.02  | 20                     | 2           |
| 5               | 64QAM  | 1  | 12 | 18.20  | 18.09 | 18.08  |                        |             |
| 5               | 64QAM  | 1  | 24 | 18.06  | 18.22 | 18.13  |                        |             |
| 5               | 64QAM  | 12 | 0  | 17.39  | 17.38 | 17.23  | 19                     | 3           |
| 5               | 64QAM  | 12 | 7  | 17.35  | 17.37 | 17.21  |                        |             |
| 5               | 64QAM  | 12 | 13 | 17.20  | 17.29 | 17.28  |                        |             |
| 5               | 64QAM  | 25 | 0  | 17.41  | 17.23 | 17.42  |                        |             |
| 5               | 256QAM | 1  | 0  | 16.61  | 16.63 | 16.56  | 18                     | 4           |
| 5               | 256QAM | 1  | 12 | 16.74  | 16.61 | 16.59  |                        |             |
| 5               | 256QAM | 1  | 24 | 16.62  | 16.82 | 16.73  |                        |             |
| 5               | 256QAM | 12 | 0  | 16.47  | 16.48 | 16.35  | 18                     | 4           |
| 5               | 256QAM | 12 | 7  | 16.41  | 16.48 | 16.33  |                        |             |
| 5               | 256QAM | 12 | 13 | 16.33  | 16.31 | 16.38  |                        |             |
| 5               | 256QAM | 25 | 0  | 16.38  | 16.32 | 16.33  |                        |             |



<LTE Band 48 Aux 2>

| 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                  |                     |          |
| Frequency (MHz) |            |         |           | 3560                  | 3609                         | 3641                          | 3690                   |                     |          |
| 20              | QPSK       | 1       | 0         | 20.72                 | 20.46                        | 20.26                         | 20.28                  | 22                  | 0        |
| 20              | QPSK       | 1       | 49        | 20.51                 | 20.14                        | 20.00                         | 20.08                  |                     |          |
| 20              | QPSK       | 1       | 99        | 20.46                 | 20.10                        | 20.04                         | 20.05                  |                     |          |
| 20              | QPSK       | 50      | 0         | 19.79                 | 19.42                        | 19.30                         | 19.39                  | 21                  | 1        |
| 20              | QPSK       | 50      | 24        | 19.63                 | 19.24                        | 19.25                         | 19.23                  |                     |          |
| 20              | QPSK       | 50      | 50        | 19.57                 | 19.29                        | 19.02                         | 19.19                  |                     |          |
| 20              | QPSK       | 100     | 0         | 19.64                 | 19.35                        | 19.20                         | 19.27                  | 21                  | 1        |
| 20              | 16QAM      | 1       | 0         | 19.91                 | 19.50                        | 19.39                         | 19.40                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 19.62                 | 19.24                        | 19.22                         | 19.21                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 19.61                 | 19.33                        | 19.13                         | 19.14                  | 20                  | 2        |
| 20              | 16QAM      | 50      | 0         | 18.82                 | 18.48                        | 18.34                         | 18.33                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 18.67                 | 18.23                        | 18.25                         | 18.33                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 18.60                 | 18.24                        | 18.19                         | 18.22                  | 20                  | 2        |
| 20              | 16QAM      | 100     | 0         | 18.66                 | 18.30                        | 18.19                         | 18.27                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 18.61                 | 18.35                        | 18.12                         | 18.11                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 18.46                 | 18.06                        | 18.30                         | 18.32                  | 20                  | 2        |
| 20              | 64QAM      | 1       | 99        | 18.46                 | 18.02                        | 18.22                         | 18.27                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 17.85                 | 17.46                        | 17.27                         | 17.39                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 17.69                 | 17.31                        | 17.30                         | 17.38                  | 19                  | 3        |
| 20              | 64QAM      | 50      | 50        | 17.69                 | 17.24                        | 17.14                         | 17.22                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 17.63                 | 17.35                        | 17.28                         | 17.31                  |                     |          |
| 20              | 256QAM     | 1       | 0         | 17.20                 | 16.88                        | 16.67                         | 16.61                  | 18                  | 4        |
| 20              | 256QAM     | 1       | 49        | 17.02                 | 16.60                        | 16.80                         | 16.84                  |                     |          |
| 20              | 256QAM     | 1       | 99        | 17.00                 | 16.59                        | 16.80                         | 16.87                  |                     |          |
| 20              | 256QAM     | 50      | 0         | 16.22                 | 16.22                        | 16.15                         | 16.20                  | 18                  | 4        |
| 20              | 256QAM     | 50      | 24        | 16.21                 | 16.14                        | 16.18                         | 16.15                  |                     |          |
| 20              | 256QAM     | 50      | 50        | 16.22                 | 16.22                        | 16.23                         | 16.20                  |                     |          |
| 20              | 256QAM     | 100     | 0         | 16.13                 | 16.18                        | 16.13                         | 16.16                  |                     |          |
| Channel         |            |         |           | 55315                 | 55820                        | 56160                         | 56665                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 3557.5                | 3608                         | 3642                          | 3692.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 20.68                 | 20.44                        | 20.23                         | 20.25                  | 22                  | 0        |
| 15              | QPSK       | 1       | 37        | 20.50                 | 20.09                        | 20.15                         | 20.04                  |                     |          |
| 15              | QPSK       | 1       | 74        | 20.45                 | 20.10                        | 20.04                         | 20.05                  |                     |          |
| 15              | QPSK       | 36      | 0         | 19.69                 | 19.38                        | 19.29                         | 19.32                  | 21                  | 1        |
| 15              | QPSK       | 36      | 20        | 19.61                 | 19.19                        | 19.25                         | 19.18                  |                     |          |
| 15              | QPSK       | 36      | 39        | 19.50                 | 19.23                        | 19.01                         | 19.18                  |                     |          |
| 15              | QPSK       | 75      | 0         | 19.64                 | 19.32                        | 19.20                         | 19.25                  | 21                  | 1        |
| 15              | 16QAM      | 1       | 0         | 19.81                 | 19.44                        | 19.31                         | 19.36                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 19.58                 | 19.16                        | 19.15                         | 19.17                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 19.59                 | 19.24                        | 19.07                         | 19.05                  | 20                  | 2        |
| 15              | 16QAM      | 36      | 0         | 18.82                 | 18.38                        | 18.30                         | 18.23                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 18.60                 | 18.17                        | 18.16                         | 18.29                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 18.53                 | 18.23                        | 18.18                         | 18.12                  | 20                  | 2        |
| 15              | 16QAM      | 75      | 0         | 18.57                 | 18.30                        | 18.10                         | 18.19                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 18.56                 | 18.31                        | 18.05                         | 18.04                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 18.37                 | 18.17                        | 18.25                         | 18.30                  | 20                  | 2        |
| 15              | 64QAM      | 1       | 74        | 18.43                 | 18.15                        | 18.12                         | 18.26                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 17.84                 | 17.46                        | 17.25                         | 17.31                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 17.67                 | 17.27                        | 17.28                         | 17.28                  | 19                  | 3        |
| 15              | 64QAM      | 36      | 39        | 17.69                 | 17.23                        | 17.13                         | 17.19                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 17.62                 | 17.25                        | 17.26                         | 17.31                  |                     |          |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|                 |        |    |    |        |        |        |        |                     |          |
|-----------------|--------|----|----|--------|--------|--------|--------|---------------------|----------|
| 15              | 256QAM | 1  | 0  | 17.16  | 16.88  | 16.62  | 16.61  | 18                  | 4        |
| 15              | 256QAM | 1  | 37 | 16.91  | 16.67  | 16.86  | 16.90  |                     |          |
| 15              | 256QAM | 1  | 74 | 17.03  | 16.70  | 16.78  | 16.81  |                     |          |
| 15              | 256QAM | 36 | 0  | 16.22  | 16.22  | 16.15  | 16.20  | 18                  | 4        |
| 15              | 256QAM | 36 | 20 | 16.21  | 16.14  | 16.18  | 16.15  |                     |          |
| 15              | 256QAM | 36 | 39 | 16.22  | 16.22  | 16.23  | 16.20  |                     |          |
| 15              | 256QAM | 75 | 0  | 16.13  | 16.18  | 16.13  | 16.16  |                     |          |
| Channel         |        |    |    | 55290  | 55815  | 56165  | 56690  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 3555   | 3607.5 | 3642.5 | 3695   |                     |          |
| 10              | QPSK   | 1  | 0  | 20.62  | 20.36  | 20.20  | 20.19  | 22                  | 0        |
| 10              | QPSK   | 1  | 25 | 20.44  | 20.06  | 20.11  | 20.15  |                     |          |
| 10              | QPSK   | 1  | 49 | 20.41  | 20.03  | 20.15  | 20.19  |                     |          |
| 10              | QPSK   | 25 | 0  | 19.68  | 19.35  | 19.23  | 19.29  | 21                  | 1        |
| 10              | QPSK   | 25 | 12 | 19.60  | 19.14  | 19.20  | 19.09  |                     |          |
| 10              | QPSK   | 25 | 25 | 19.46  | 19.18  | 19.14  | 19.17  |                     |          |
| 10              | QPSK   | 50 | 0  | 19.59  | 19.27  | 19.13  | 19.15  |                     |          |
| 10              | 16QAM  | 1  | 0  | 19.75  | 19.34  | 19.21  | 19.28  | 21                  | 1        |
| 10              | 16QAM  | 1  | 25 | 19.49  | 19.09  | 19.08  | 19.09  |                     |          |
| 10              | 16QAM  | 1  | 49 | 19.56  | 19.14  | 19.04  | 19.04  |                     |          |
| 10              | 16QAM  | 25 | 0  | 18.72  | 18.33  | 18.20  | 18.15  | 20                  | 2        |
| 10              | 16QAM  | 25 | 12 | 18.50  | 18.12  | 18.12  | 18.28  |                     |          |
| 10              | 16QAM  | 25 | 25 | 18.45  | 18.22  | 18.13  | 18.10  |                     |          |
| 10              | 16QAM  | 50 | 0  | 18.47  | 18.29  | 18.06  | 18.17  |                     |          |
| 10              | 64QAM  | 1  | 0  | 18.55  | 18.30  | 18.02  | 18.15  | 20                  | 2        |
| 10              | 64QAM  | 1  | 25 | 18.36  | 18.11  | 18.22  | 18.22  |                     |          |
| 10              | 64QAM  | 1  | 49 | 18.38  | 18.10  | 18.12  | 18.16  |                     |          |
| 10              | 64QAM  | 25 | 0  | 17.82  | 17.44  | 17.15  | 17.21  | 19                  | 3        |
| 10              | 64QAM  | 25 | 12 | 17.57  | 17.22  | 17.22  | 17.19  |                     |          |
| 10              | 64QAM  | 25 | 25 | 17.60  | 17.14  | 17.08  | 17.09  |                     |          |
| 10              | 64QAM  | 50 | 0  | 17.54  | 17.17  | 17.21  | 17.29  |                     |          |
| 10              | 256QAM | 1  | 0  | 17.08  | 16.80  | 16.65  | 16.66  | 18                  | 4        |
| 10              | 256QAM | 1  | 25 | 16.87  | 16.68  | 16.80  | 16.85  |                     |          |
| 10              | 256QAM | 1  | 49 | 16.94  | 16.63  | 16.69  | 16.80  |                     |          |
| 10              | 256QAM | 25 | 0  | 16.22  | 16.22  | 16.15  | 16.20  | 18                  | 4        |
| 10              | 256QAM | 25 | 12 | 16.21  | 16.14  | 16.18  | 16.15  |                     |          |
| 10              | 256QAM | 25 | 25 | 16.22  | 16.22  | 16.23  | 16.20  |                     |          |
| 10              | 256QAM | 50 | 0  | 16.13  | 16.18  | 16.13  | 16.16  |                     |          |
| Channel         |        |    |    | 55265  | 55810  | 56170  | 56715  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |        |    |    | 3552.5 | 3607   | 3643   | 3697.5 |                     |          |
| 5               | QPSK   | 1  | 0  | 20.56  | 20.28  | 20.13  | 20.10  | 22                  | 0        |
| 5               | QPSK   | 1  | 12 | 20.41  | 20.05  | 20.11  | 20.10  |                     |          |
| 5               | QPSK   | 1  | 24 | 20.32  | 20.00  | 20.11  | 20.12  |                     |          |
| 5               | QPSK   | 12 | 0  | 19.59  | 19.27  | 19.19  | 19.23  | 21                  | 1        |
| 5               | QPSK   | 12 | 7  | 19.58  | 19.05  | 19.11  | 19.07  |                     |          |
| 5               | QPSK   | 12 | 13 | 19.39  | 19.09  | 19.12  | 19.07  |                     |          |
| 5               | QPSK   | 25 | 0  | 19.57  | 19.23  | 19.04  | 19.13  |                     |          |
| 5               | 16QAM  | 1  | 0  | 19.68  | 19.34  | 19.12  | 19.28  | 21                  | 1        |
| 5               | 16QAM  | 1  | 12 | 19.40  | 19.01  | 19.07  | 19.08  |                     |          |
| 5               | 16QAM  | 1  | 24 | 19.46  | 19.08  | 19.00  | 19.00  |                     |          |
| 5               | 16QAM  | 12 | 0  | 18.67  | 18.24  | 18.20  | 18.09  | 20                  | 2        |
| 5               | 16QAM  | 12 | 7  | 18.40  | 18.02  | 18.05  | 18.25  |                     |          |
| 5               | 16QAM  | 12 | 13 | 18.42  | 18.12  | 18.06  | 18.03  |                     |          |
| 5               | 16QAM  | 25 | 0  | 18.38  | 18.20  | 18.05  | 18.09  |                     |          |
| 5               | 64QAM  | 1  | 0  | 18.52  | 18.22  | 18.00  | 18.07  | 20                  | 2        |
| 5               | 64QAM  | 1  | 12 | 18.34  | 18.05  | 18.22  | 18.22  |                     |          |
| 5               | 64QAM  | 1  | 24 | 18.29  | 18.00  | 18.09  | 18.11  |                     |          |



**FCC SAR TEST REPORT**

**Report No. : FA162928**

|   |        |    |    |       |       |       |       |    |   |
|---|--------|----|----|-------|-------|-------|-------|----|---|
| 5 | 64QAM  | 12 | 0  | 17.72 | 17.38 | 17.13 | 17.21 | 19 | 3 |
| 5 | 64QAM  | 12 | 7  | 17.47 | 17.20 | 17.14 | 17.15 |    |   |
| 5 | 64QAM  | 12 | 13 | 17.56 | 17.12 | 17.05 | 17.00 |    |   |
| 5 | 64QAM  | 25 | 0  | 17.51 | 17.12 | 17.15 | 17.24 |    |   |
| 5 | 256QAM | 1  | 0  | 17.12 | 16.79 | 16.59 | 16.70 | 18 | 4 |
| 5 | 256QAM | 1  | 12 | 16.91 | 16.59 | 16.76 | 16.85 |    |   |
| 5 | 256QAM | 1  | 24 | 16.85 | 16.55 | 16.67 | 16.84 |    |   |
| 5 | 256QAM | 12 | 0  | 16.23 | 16.18 | 16.11 | 16.20 | 18 | 4 |
| 5 | 256QAM | 12 | 7  | 16.28 | 16.08 | 16.15 | 16.28 |    |   |
| 5 | 256QAM | 12 | 13 | 16.14 | 16.02 | 16.00 | 16.03 |    |   |
| 5 | 256QAM | 25 | 0  | 16.09 | 16.09 | 16.15 | 16.12 |    |   |



**<LTE Carrier Aggregation combinations>**

**General Note:**

1. This device supports Carrier Aggregation on downlink only for inter and intra band. For the device supports combination bands and configurations are according to 3GPP.
2. In applying the existing power measurement procedure of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of the frequency band and CCs in each row need consideration, and that configurations require power measurement should be highlighted in the below table.

| 2CC Downlink Carrier Aggregation |             |                      | 3CC Downlink Carrier Aggregation |             |                      |
|----------------------------------|-------------|----------------------|----------------------------------|-------------|----------------------|
| Number                           | Combination | Covered by           | Number                           | Combination | Covered by           |
|                                  |             | Measurement Superset |                                  |             | Measurement Superset |
| 1                                | 12A-12A     | 3CC-87               | 69                               | 12A-30A-66A | 4CC-191              |
| 2                                | 12A-25A     |                      | 70                               | 12A-66A-66A | 4CC-192              |
| 3                                | 12A-30A     | 3CC-69               | 71                               | 12A-66C     | 4CC-210              |
| 4                                | 12A-66A     | 3CC-70               | 72                               | 12B-66A     | 4CC-192              |
| 5                                | 12B         | 3CC-72               | 73                               | 13A-48A-48A | 4CC-194              |
| 6                                | 13A-48A     | 3CC-73               | 74                               | 13A-48A-66A | 4CC-196              |
| 7                                | 13A-66A     | 3CC-76               | 75                               | 13A-48C     | 4CC-197              |
| 8                                | 14A-30A     | 3CC-79               | 76                               | 13A-66A-66A | 4CC-199              |
| 9                                | 14A-66A     | 3CC-80               | 77                               | 13A-66B     | 4CC-195              |
| 10                               | 25A-25A     | 3CC-81               | 78                               | 13A-66C     | 4CC-196              |
| 11                               | 25A-26A     | 3CC-82               | 79                               | 14A-30A-66A | 4CC-203              |
| 12                               | 25A-41A     | 3CC-83               | 80                               | 14A-66A-66A | 4CC-204              |
| 13                               | 26A-41A     | 3CC-86               | 81                               | 25A-25A-25A |                      |
| 14                               | 2A-12A      | 3CC-87               | 82                               | 25A-25A-26A |                      |
| 15                               | 2A-13A      | 3CC-91               | 83                               | 25A-25A-41A | 4CC-205              |
| 16                               | 2A-14A      | 3CC-93               | 84                               | 25A-26A-41A | 4CC-206              |
| 17                               | 2A-2A       | 3CC-95               | 85                               | 25A-41C     | 4CC-205              |
| 18                               | 2A-30A      | 3CC-98               | 86                               | 26A-41C     | 4CC-206              |
| 19                               | 2A-48A      | 3CC-105              | 87                               | 2A-12A-12A  | 4CC-219              |
| 20                               | 2A-4A       | 3CC-108              | 88                               | 2A-12A-30A  | 4CC-220              |
| 21                               | 2A-5A       | 3CC-115              | 89                               | 2A-12A-66A  | 4CC-210              |
| 22                               | 2A-66A      | 3CC-120              | 90                               | 2A-12B      | 4CC-222              |
| 24                               | 2A-7A       | 3CC-126              | 91                               | 2A-13A-48A  | 4CC-211              |
| 25                               | 2C          | 3CC-128              | 92                               | 2A-13A-66A  | 4CC-214              |
| 26                               | 30A-66A     | 3CC-132              | 93                               | 2A-14A-30A  | 4CC-217              |
| 27                               | 38A-40A     | 3CC-133              | 94                               | 2A-14A-66A  | 4CC-218              |
| 28                               | 38C         |                      | 95                               | 2A-2A-12A   | 4CC-219              |
| 29                               | 41A-41A     | 3CC-134              | 96                               | 2A-2A-13A   | 4CC-223              |
| 30                               | 41A-42A     | 3CC-137              | 97                               | 2A-2A-14A   | 4CC-224              |
| 31                               | 41A-48A     |                      | 98                               | 2A-2A-30A   | 4CC-226              |
| 32                               | 41C         | 5CC-380              | 99                               | 2A-2A-4A    | 4CC-228              |
| 33                               | 42A-42A     | 3CC-136              | 100                              | 2A-2A-5A    | 4CC-231              |
| 34                               | 42C         | 5CC-379              | 101                              | 2A-2A-66A   | 4CC-234              |
| 35                               | 48A-48A     | 3CC-142              | 103                              | 2A-2A-7A    | 4CC-238              |
| 36                               | 48A-66A     | 3CC-142              | 104                              | 2A-30A-66A  | 4CC-226              |
| 38                               | 48C         | 3CC-107              | 105                              | 2A-48A-48A  | 4CC-240              |
| 39                               | 4A-12A      | 3CC-108              | 106                              | 2A-48A-66A  | 4CC-240              |
| 40                               | 4A-13A      | 3CC-109              | 107                              | 2A-48C      | 4CC-242              |
| 41                               | 4A-30A      | 3CC-110              | 108                              | 2A-4A-12A   | 4CC-244              |
| 42                               | 4A-48A      | 4CC-298              | 109                              | 2A-4A-13A   |                      |
| 43                               | 4A-4A       | 3CC-111              | 110                              | 2A-4A-30A   | 4CC-249              |
| 44                               | 4A-5A       | 3CC-112              | 111                              | 2A-4A-4A    | 4CC-247              |
| 46                               | 4A-7A       | 3CC-114              | 112                              | 2A-4A-5A    | 4CC-249              |
| 47                               | 5A-25A      |                      | 114                              | 2A-4A-7A    | 4CC-251              |
| 48                               | 5A-30A      | 3CC-115              | 115                              | 2A-5A-30A   | 4CC-254              |



|    |         |         |     |             |         |
|----|---------|---------|-----|-------------|---------|
| 49 | 5A-38A  |         | 116 | 2A-5A-48A   | 4CC-255 |
| 50 | 5A-40A  | 3CC-166 | 117 | 2A-5A-66A   | 4CC-256 |
| 51 | 5A-41A  |         | 118 | 2A-5A-7A    |         |
| 52 | 5A-48A  | 3CC-116 | 119 | 2A-5B       | 4CC-233 |
| 53 | 5A-5A   | 3CC-169 | 120 | 2A-66A-66A  | 4CC-234 |
| 54 | 5A-66A  | 3CC-170 | 122 | 2A-66B      | 4CC-236 |
| 55 | 5A-7A   | 3CC-173 | 123 | 2A-66C      | 4CC-237 |
| 56 | 5B      | 3CC-119 | 124 | 2A-7A-12A   | 4CC-251 |
| 57 | 66A-66A | 3CC-132 | 125 | 2A-7A-66A   | 4CC-238 |
| 59 | 66B     | 3CC-145 | 126 | 2A-7A-7A    | 4CC-252 |
| 60 | 66C     | 3CC-146 | 127 | 2A-7C       | 4CC-253 |
| 61 | 7A-12A  | 3CC-124 | 128 | 2C-12A      | 4CC-272 |
| 62 | 7A-42A  |         | 129 | 2C-30A      | 4CC-261 |
| 63 | 7A-66A  | 3CC-125 | 130 | 2C-5A       | 4CC-273 |
| 64 | 7A-7A   | 3CC-126 | 131 | 2C-66A      | 4CC-274 |
| 65 | 7B      | 3CC-127 | 132 | 30A-66A-66A | 4CC-239 |
| 66 | 7C      | 3CC-127 | 133 | 41A-41A-41A | 4CC-275 |
| 67 | 4A-17A  |         | 134 | 41A-41C     | 4CC-275 |
| 68 | 2A-17A  |         | 135 | 41A-42A-42A | 4CC-277 |
|    |         |         | 136 | 41A-42C     | 4CC-277 |
|    |         |         | 137 | 41C-42A     | 4CC-280 |
|    |         |         | 138 | 41D         | 4CC-276 |
|    |         |         | 139 | 42A-42C     | 4CC-277 |
|    |         |         | 140 | 42D         | 4CC-278 |
|    |         |         | 141 | 48A-48A-66A | 4CC-286 |
|    |         |         | 143 | 48A-48C     | 4CC-289 |
|    |         |         | 144 | 48A-66A-66A | 4CC-286 |
|    |         |         | 145 | 48A-66B     | 4CC-287 |
|    |         |         | 146 | 48A-66C     | 4CC-288 |
|    |         |         | 147 | 48C-66A     | 4CC-289 |
|    |         |         | 149 | 48D         | 4CC-290 |
|    |         |         | 150 | 4A-12A-12A  | 4CC-299 |
|    |         |         | 151 | 4A-12A-30A  | 4CC-300 |
|    |         |         | 152 | 4A-12B      | 4CC-301 |
|    |         |         | 153 | 4A-48C      |         |
|    |         |         | 154 | 4A-4A-12A   | 4CC-299 |
|    |         |         | 155 | 4A-4A-13A   |         |
|    |         |         | 156 | 4A-4A-30A   | 4CC-300 |
|    |         |         | 157 | 4A-4A-5A    | 4CC-303 |
|    |         |         | 159 | 4A-4A-7A    |         |
|    |         |         | 160 | 4A-5A-30A   | 4CC-302 |
|    |         |         | 161 | 4A-5B       | 4CC-303 |
|    |         |         | 162 | 4A-7A-12A   | 4CC-251 |
|    |         |         | 163 | 4A-7A-7A    | 4CC-252 |
|    |         |         | 164 | 4A-7C       | 4CC-253 |
|    |         |         | 165 | 5A-30A-66A  | 4CC-305 |
|    |         |         | 166 | 5A-48A-48A  | 4CC-306 |
|    |         |         | 167 | 5A-48A-66A  | 4CC-306 |
|    |         |         | 168 | 5A-48C      | 4CC-308 |
|    |         |         | 169 | 5A-5A-66A   | 4CC-310 |
|    |         |         | 170 | 5A-66A-66A  | 4CC-310 |
|    |         |         | 171 | 5A-66B      | 4CC-311 |
|    |         |         | 172 | 5A-66C      | 4CC-312 |
|    |         |         | 173 | 5A-7A-7A    | 3CC-174 |
|    |         |         | 174 | 5A-7C       |         |
|    |         |         | 175 | 5B-30A      | 4CC-316 |



|  |  |  |     |             |         |
|--|--|--|-----|-------------|---------|
|  |  |  | 176 | 5B-66A      | 4CC-317 |
|  |  |  | 177 | 66A-66A-66A | 4CC-263 |
|  |  |  | 179 | 66A-66B     | 4CC-313 |
|  |  |  | 180 | 66A-66C     | 4CC-314 |
|  |  |  | 182 | 66D         | 4CC-268 |
|  |  |  | 183 | 7A-12A-66A  | 4CC-269 |
|  |  |  | 184 | 7A-12B      | 4CC-320 |
|  |  |  | 185 | 7A-66A-66A  | 4CC-326 |
|  |  |  | 186 | 7C-66A      | 4CC-321 |
|  |  |  | 187 | 2A-48A-66A  | 4CC-325 |
|  |  |  | 188 | 48A-66B     | 4CC-195 |
|  |  |  | 189 | 7A-7A-66A   | 4CC-326 |
|  |  |  | 190 | 7A-7A-13A   | 4CC-328 |

| 4CC Downlink Carrier Aggregation |                 |                      | 5CC Downlink Carrier Aggregation |                    |                      |
|----------------------------------|-----------------|----------------------|----------------------------------|--------------------|----------------------|
| Number                           | Combination     | Covered by           | Covered by                       | Combination        | Covered by           |
|                                  |                 | Measurement Superset | Measurement Superset             |                    | Measurement Superset |
| 191                              | 12A-30A-66A-66A | 5CC-338              | 329                              | 13A-48A-48C-66A    |                      |
| 192                              | 12B-66A-66A     | 5CC-402              | 330                              | 13A-48A-48D        |                      |
| 193                              | 13A-48A-48A-66A | 5CC-339              | 331                              | 13A-48C-48C        |                      |
| 194                              | 13A-48A-48C     | 5CC-329              | 332                              | 13A-48C-66B        |                      |
| 195                              | 13A-48A-66B     | 5CC-333              | 333                              | 13A-48C-66C        |                      |
| 196                              | 13A-48A-66C     | 5CC-333              | 334                              | 13A-48D-66A        |                      |
| 197                              | 13A-48C-66A     | 5CC-341              | 335                              | 13A-48E            | 5CC-407              |
| 198                              | 13A-48D         | 5CC-334              | 336                              | 25A-25A-41D        |                      |
| 199                              | 13A-66A-66A-66A | 5CC-345              | 337                              | 25A-41E            |                      |
| 200                              | 13A-66A-66B     | 5CC-343              | 338                              | 2A-12A-30A-66A-66A |                      |
| 201                              | 13A-66A-66C     | 5CC-344              | 339                              | 2A-13A-48A-48A-66A |                      |
| 202                              | 13A-66D         | 5CC-345              | 340                              | 2A-13A-48A-48C     |                      |
| 203                              | 14A-30A-66A-66A | 5CC-346              | 341                              | 2A-13A-48C-66A     |                      |
| 204                              | 14A-66A-66A-66A | 5CC-347              | 342                              | 2A-13A-48D         |                      |
| 205                              | 25A-25A-41C     | 5CC-336              | 343                              | 2A-13A-66A-66B     |                      |
| 206                              | 25A-26A-41C     |                      | 344                              | 2A-13A-66A-66C     |                      |
| 207                              | 25A-41D         | 5CC-336              | 345                              | 2A-13A-66D         |                      |
| 208                              | 2A-12A-30A-66A  | 5CC-338              | 346                              | 2A-14A-30A-66A-66A |                      |
| 209                              | 2A-12A-66A-66A  | 5CC-349              | 347                              | 2A-14A-66A-66A-66A |                      |
| 210                              | 2A-12A-66C      |                      | 348                              | 2A-2A-12A-30A-66A  |                      |
| 211                              | 2A-13A-48A-48A  | 5CC-339              | 349                              | 2A-2A-12A-66A-66A  |                      |
| 212                              | 2A-13A-48A-66A  | 5CC-339              | 350                              | 2A-2A-12B-66A      |                      |
| 213                              | 2A-13A-48C      | 5CC-341              | 351                              | 2A-2A-13A-66A-66A  |                      |
| 214                              | 2A-13A-66A-66A  | 5CC-351              | 352                              | 2A-2A-13A-66B      |                      |
| 215                              | 2A-13A-66B      | 5CC-352              | 353                              | 2A-2A-14A-30A-66A  |                      |
| 216                              | 2A-13A-66C      | 5CC-344              | 354                              | 2A-2A-14A-66A-66A  |                      |
| 217                              | 2A-14A-30A-66A  | 5CC-346              | 355                              | 2A-2A-5A-30A-66A   |                      |
| 218                              | 2A-14A-66A-66A  | 5CC-347              | 356                              | 2A-2A-5A-66A-66A   |                      |
| 219                              | 2A-2A-12A-12A   | 5CC-350              | 357                              | 2A-2A-5A-66B       |                      |
| 220                              | 2A-2A-12A-30A   | 5CC-348              | 358                              | 2A-2A-5A-66C       |                      |
| 221                              | 2A-2A-12A-66A   | 5CC-349              | 359                              | 2A-2A-5B-66A       |                      |
| 222                              | 2A-2A-12B       | 5CC-350              | 360                              | 2A-2A-66A-66B      |                      |
| 223                              | 2A-2A-13A-66A   | 5CC-351              | 361                              | 2A-2A-66A-66C      |                      |
| 224                              | 2A-2A-14A-30A   | 5CC-353              | 362                              | 2A-2A-7A-12A-66A   |                      |
| 225                              | 2A-2A-14A-66A   | 5CC-354              | 363                              | 2A-48A-48C-66A     |                      |
| 226                              | 2A-2A-30A-66A   | 5CC-355              | 364                              | 2A-48A-48D         |                      |
| 227                              | 2A-2A-4A-12A    |                      | 365                              | 2A-48C-48C         |                      |
| 228                              | 2A-2A-4A-4A     |                      | 366                              | 2A-48D-66A         |                      |
| 229                              | 2A-2A-4A-5A     |                      | 367                              | 2A-48E             | 5CC-405              |





|     |                 |         |                                  |                   |                      |
|-----|-----------------|---------|----------------------------------|-------------------|----------------------|
| 231 | 2A-2A-5A-30A    | 5CC-355 | 368                              | 2A-4A-5B-30A      |                      |
| 232 | 2A-2A-5A-66A    | 5CC-356 | 369                              | 2A-5A-30A-66A-66A |                      |
| 233 | 2A-2A-5B        | 5CC-359 | 370                              | 2A-5A-48A-48A-66A |                      |
| 234 | 2A-2A-66A-66A   |         | 371                              | 2A-5A-48A-48C     |                      |
| 236 | 2A-2A-66B       | 5CC-360 | 372                              | 2A-5A-48C-66A     |                      |
| 237 | 2A-2A-66C       | 5CC-361 | 373                              | 2A-5A-48D         |                      |
| 238 | 2A-2A-7A-66A    | 5CC-362 | 374                              | 2A-5B-30A-66A     |                      |
| 239 | 2A-30A-66A-66A  | 5CC-338 | 375                              | 2A-5B-66A-66A     |                      |
| 240 | 2A-48A-48A-66A  | 5CC-370 | 376                              | 2A-5B-66B         |                      |
| 241 | 2A-48A-48C      | 5CC-363 | 377                              | 2A-5B-66C         |                      |
| 242 | 2A-48C-66A      | 5CC-363 | 378                              | 2A-7A-12B-66A     |                      |
| 243 | 2A-48D          | 5CC-366 | 379                              | 2C-5B-30A         |                      |
| 244 | 2A-4A-12A-12A   | 4CC-246 | 380                              | 41A-42C-42C       |                      |
| 245 | 2A-4A-12A-30A   |         | 381                              | 41C-41D           |                      |
| 246 | 2A-4A-12B       |         | 382                              | 41C-42A-42C       |                      |
| 247 | 2A-4A-4A-12A    |         | 383                              | 41D-42C           |                      |
| 248 | 2A-4A-4A-5A     |         | 384                              | 48A-48C-66B       |                      |
| 249 | 2A-4A-5A-30A    |         | 385                              | 48A-48C-66C       |                      |
| 250 | 2A-4A-5B        | 5CC-368 | 386                              | 48A-48D-66A       |                      |
| 251 | 2A-4A-7A-12A    |         | 387                              | 48C-48C-66A       |                      |
| 252 | 2A-4A-7A-7A     | 4CC-253 | 388                              | 48C-48D           |                      |
| 253 | 2A-4A-7C        |         | 389                              | 48C-66A-66A-66A   |                      |
| 254 | 2A-5A-30A-66A   | 5CC-369 | 390                              | 48E-66A           |                      |
| 255 | 2A-5A-48A-48A   | 5CC-370 | 391                              | 48F               |                      |
| 256 | 2A-5A-48A-66A   | 5CC-370 | 392                              | 4A-48E            |                      |
| 257 | 2A-5A-48C       | 5CC-372 | 393                              | 4A-4A-5B-30A      |                      |
| 258 | 2A-5A-66A-66A   | 5CC-356 | 394                              | 5A-48A-48C-66A    |                      |
| 259 | 2A-5A-66B       | 5CC-357 | 395                              | 5A-48C-48C        |                      |
| 260 | 2A-5A-66C       | 5CC-358 | 396                              | 5A-48E            |                      |
| 261 | 2A-5B-30A       | 5CC-374 | 397                              | 5B-30A-66A-66A    |                      |
| 262 | 2A-5B-66A       | 5CC-375 | 398                              | 5B-66A-66B        |                      |
| 263 | 2A-66A-66A-66A  | 5CC-347 | 399                              | 5B-66A-66C        |                      |
| 265 | 2A-66A-66B      | 5CC-360 | 400                              | 5A-48A-48D        |                      |
| 266 | 2A-66A-66C      | 5CC-361 | 401                              | 5A-48D-66A        |                      |
| 268 | 2A-66D          | 5CC-345 | 402                              | 2A-12B-66A-66A    |                      |
| 269 | 2A-7A-12A-66A   | 5CC-362 | 403                              | 2A-7C-66A-66A     |                      |
| 270 | 2A-7A-12B       | 5CC-378 | 404                              | 2A-7A-7A-66A-66A  |                      |
| 271 | 2A-7A-66A-66A   | 5CC-404 |                                  |                   |                      |
| 272 | 2C-12A-30A      |         |                                  |                   |                      |
| 273 | 2C-5A-30A       |         | 6CC Downlink Carrier Aggregation |                   |                      |
| 274 | 2C-66A-66A      |         | Number                           | Combination       | Covered by           |
| 275 | 41A-41A-41C     | 4CC-276 |                                  |                   | Measurement Superset |
| 276 | 41A-41D         |         | 405                              | 2A-48E-66A        |                      |
| 277 | 41A-42A-42C     | 4CC-278 | 406                              | 41C-42C-42C       |                      |
| 278 | 41A-42D         |         | 407                              | 13A-48E-66A       |                      |
| 279 | 41C-41C         |         |                                  |                   |                      |
| 280 | 41C-42C         | 5CC-382 |                                  |                   |                      |
| 281 | 41D-42A         |         |                                  |                   |                      |
| 282 | 41E             | 5CC-337 |                                  |                   |                      |
| 283 | 42A-42D         |         |                                  |                   |                      |
| 284 | 42C-42C         | 5CC-380 |                                  |                   |                      |
| 285 | 42E             |         |                                  |                   |                      |
| 286 | 48A-48A-66A-66A |         |                                  |                   |                      |
| 287 | 48A-48A-66B     | 4CC-288 |                                  |                   |                      |
| 288 | 48A-48A-66C     |         |                                  |                   |                      |
| 289 | 48A-48C-66A     | 5CC-394 |                                  |                   |                      |



|     |                 |         |  |  |
|-----|-----------------|---------|--|--|
| 290 | 48A-48D         | 5CC-400 |  |  |
| 291 | 48A-66A-66A-66A |         |  |  |
| 292 | 48C-48C         | 5CC-395 |  |  |
| 293 | 48C-66A-66A     | 5CC-385 |  |  |
| 294 | 48C-66B         | 5CC-384 |  |  |
| 295 | 48C-66C         | 5CC-385 |  |  |
| 296 | 48D-66A         | 5CC-401 |  |  |
| 297 | 48E             | 5CC-396 |  |  |
| 298 | 4A-48D          |         |  |  |
| 299 | 4A-4A-12A-12A   | 4CC-301 |  |  |
| 300 | 4A-4A-12A-30A   |         |  |  |
| 301 | 4A-4A-12B       |         |  |  |
| 302 | 4A-4A-5A-30A    |         |  |  |
| 303 | 4A-4A-5B        | 5CC-393 |  |  |
| 304 | 4A-5B-30A       | 5CC-393 |  |  |
| 305 | 5A-30A-66A-66A  | 5CC-369 |  |  |
| 306 | 5A-48A-48A-66A  | 5CC-370 |  |  |
| 307 | 5A-48A-48C      | 5CC-371 |  |  |
| 308 | 5A-48C-66A      | 5CC-372 |  |  |
| 309 | 5A-48D          | 5CC-373 |  |  |
| 310 | 5A-5A-66A-66A   | 4CC-315 |  |  |
| 311 | 5A-5A-66B       | 4CC-315 |  |  |
| 312 | 5A-5A-66C       | 4CC-315 |  |  |
| 313 | 5A-66A-66B      | 4CC-315 |  |  |
| 314 | 5A-66A-66C      | 4CC-315 |  |  |
| 315 | 5A-66D          |         |  |  |
| 316 | 5B-30A-66A      | 5CC-397 |  |  |
| 317 | 5B-66A-66A      | 5CC-397 |  |  |
| 318 | 5B-66B          | 5CC-376 |  |  |
| 319 | 5B-66C          | 5CC-377 |  |  |
| 320 | 7A-12B-66A      | 5CC-378 |  |  |
| 321 | 7C-66A-66A      | 5CC-403 |  |  |
| 322 | 2A-12B-66A      | 5CC-350 |  |  |
| 323 | 2A-7A-7A-66A    | 5CC-404 |  |  |
| 324 | 2A-7C-66A       | 5CC-403 |  |  |
| 325 | 2A-48A-66A-66A  |         |  |  |
| 326 | 7A-7A-66A-66A   | 5CC-404 |  |  |
| 327 | 2A-2A-7A-12A    | 5CC-362 |  |  |
| 328 | 2A-7A-7A-13A    |         |  |  |

**<Power verification when LTE Carrier Aggregation Active>**

**General Note:**

- i. According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.
- ii. Uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.
- iii. The device supports downlink two carrier aggregation. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.
- iv. Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.
- v. For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.
- vi. For Intra-band, contiguous CA, the downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements.

$$\text{Nominal channel spacing} = \left\lceil \frac{BW_{\text{Channel}(1)} + BW_{\text{Channel}(2)} - 0.1|BW_{\text{Channel}(1)} - BW_{\text{Channel}(2)}|}{0.6} \right\rceil 0.3 \text{ [MHz]}$$

**<Two Carrier power verification>**

| Configure  | PCC        |          |                |            |       |        |              | SCC      |          |                |            | Power                  |                       |       |
|------------|------------|----------|----------------|------------|-------|--------|--------------|----------|----------|----------------|------------|------------------------|-----------------------|-------|
|            | LTE Band   | BW (MHz) | UL Freq. (MHz) | UL Channel | Mod.  | UL# RB | UL RB Offset | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | With CA Tx.Power (dBm) | W/O CA Tx.Power (dBm) |       |
| Inter-Band | 2          | 20       | 1860           | 18700      | QPSK  | 1      | 0            | 17       | 10       | 740            | 5790       | 23.11                  | 23.04                 |       |
|            | 4          | 20       | 1720           | 20050      | QPSK  | 1      | 0            | 17       | 10       | 740            | 5790       | 23.09                  | 23.18                 |       |
|            | 5          | 10       | 844            | 20600      | QPSK  | 1      | 0            | 25       | 20       | 1960           | 8340       | 23.29                  | 23.28                 |       |
|            | 5          | 10       | 844            | 20600      | QPSK  | 1      | 0            | 38       | 20       | 2595           | 38000      | 23.32                  | 23.28                 |       |
|            | 5          | 10       | 844            | 20600      | QPSK  | 1      | 0            | 41       | 20       | 2593           | 40620      | 23.41                  | 23.28                 |       |
|            | 7          | 20       | 2535           | 21100      | QPSK  | 1      | 0            | 42       | 20       | 3575           | 43340      | 23.19                  | 23.05                 |       |
|            | 12         | 10       | 704            | 23060      | QPSK  | 1      | 0            | 25       | 20       | 1960           | 8340       | 23.42                  | 23.31                 |       |
| Intra-Band | Contiguous | 38       | 20             | 2549.5     | 40185 | QPSK   | 1            | 0        | 48       | 20             | 3609       | 55830                  | 23.22                 | 23.07 |
| Intra-Band | Contiguous | 38       | 20             | 2580       | 37850 | QPSK   | 1            | 0        | 38       | 20             | 2599.80    | 38048                  | 23.06                 | 22.95 |

**<Three Carrier power verification>**

| Configure  | PCC      |          |                |            |      |        |              | SCC1     |          |                |            | SCC2     |          |                |            | Power                  |                       |
|------------|----------|----------|----------------|------------|------|--------|--------------|----------|----------|----------------|------------|----------|----------|----------------|------------|------------------------|-----------------------|
|            | LTE Band | BW (MHz) | UL Freq. (MHz) | UL Channel | Mod. | UL# RB | UL RB Offset | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | With CA Tx.Power (dBm) | W/O CA Tx.Power (dBm) |
| Inter-Band | 2        | 20       | 1860           | 18700      | QPSK | 1      | 0            | 4        | 20       | 2132.5         | 2175       | 13       | 10       | 751            | 5230       | 23.17                  | 23.04                 |
|            | 2        | 20       | 1860           | 18700      | QPSK | 1      | 0            | 5        | 10       | 881.5          | 2525       | 7        | 20       | 2655           | 3100       | 23.20                  | 23.04                 |
|            | 4        | 20       | 1720           | 20050      | QPSK | 1      | 0            | 4        | 5        | 2112.5         | 1975       | 7        | 20       | 2655           | 3100       | 23.01                  | 23.18                 |
|            | 4        | 20       | 1720           | 20050      | QPSK | 1      | 0            | 4        | 5        | 2112.5         | 1975       | 13       | 10       | 751            | 5230       | 22.97                  | 23.18                 |
|            | 4        | 20       | 1720           | 20050      | QPSK | 1      | 0            | 48       | 20       | 3609           | 55830      | 48       | 20       | 3628.8         | 56028      | 23.10                  | 23.18                 |
|            | 5        | 10       | 844            | 20600      | QPSK | 1      | 0            | 7        | 20       | 2655           | 3100       | 7        | 20       | 2674.8         | 3298       | 23.15                  | 23.28                 |
|            | 25       | 20       | 1905           | 26590      | QPSK | 1      | 0            | 25       | 5        | 1932.5         | 8065       | 25       | 20       | 1985           | 8590       | 22.98                  | 22.91                 |
|            | 25       | 20       | 1905           | 26590      | QPSK | 1      | 0            | 25       | 5        | 1932.5         | 8065       | 26       | 15       | 876.5          | 8865       | 23.05                  | 22.91                 |



<Four Carrier power verification>

Table with columns: Configure, PCC, SCC1, SCC2, SCC3, Power. Rows include LTE Band, BW (MHz), UL Freq. (MHz), UL Channel, Mod., UL# RB, UL RB Offset, DL Freq. (MHz), DL Channel, and Tx. Power (dBm) for various configurations.

<Five Carrier power verification>

Table with columns: Configure, PCC, SCC1, SCC2, SCC3, SCC4, Power. Rows include LTE Band, BW (MHz), UL Freq. (MHz), UL Channel, Mod., UL# RB, UL RB Offset, DL Freq. (MHz), DL Channel, and Tx. Power (dBm) for various configurations.



**FCC SAR TEST REPORT**

Report No. : FA162928

|    |    |        |       |      |   |   |    |    |        |       |    |    |        |       |    |    |        |       |    |    |        |       |       |       |
|----|----|--------|-------|------|---|---|----|----|--------|-------|----|----|--------|-------|----|----|--------|-------|----|----|--------|-------|-------|-------|
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 5  | 10 | 881.5  | 2525  | 48 | 20 | 3609   | 55830 | 48 | 20 | 3628.8 | 56028 | 66 | 20 | 2155   | 66886 | 22.88 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 5  | 10 | 881.5  | 2525  | 48 | 20 | 3609   | 55830 | 48 | 20 | 3628.8 | 56028 | 48 | 20 | 3648.7 | 56227 | 22.99 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 5  | 10 | 881.5  | 2525  | 5  | 10 | 891.4  | 2624  | 30 | 10 | 2355   | 9820  | 66 | 20 | 2155   | 66886 | 23.20 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 5  | 10 | 881.5  | 2525  | 5  | 10 | 891.4  | 2624  | 66 | 20 | 2155   | 66886 | 66 | 20 | 2174.8 | 67084 | 22.95 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 7  | 20 | 2655   | 3100  | 12 | 5  | 737.5  | 5095  | 12 | 10 | 744.7  | 5167  | 66 | 20 | 2155   | 66886 | 22.86 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 7  | 20 | 2655   | 3100  | 7  | 20 | 2674.8 | 3298  | 66 | 20 | 2155   | 66886 | 66 | 5  | 2197.5 | 67311 | 23.21 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 12 | 5  | 737.5  | 5095  | 12 | 10 | 744.7  | 5167  | 66 | 20 | 2155   | 66886 | 66 | 5  | 2197.5 | 67311 | 23.15 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 12 | 10 | 737.5  | 5095  | 30 | 10 | 2355   | 9820  | 66 | 20 | 2155   | 66886 | 66 | 5  | 2197.5 | 67311 | 23.09 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 13 | 10 | 751    | 5230  | 48 | 20 | 3609   | 55830 | 48 | 5  | 3697.5 | 56715 | 48 | 20 | 3709.2 | 56832 | 22.89 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 13 | 10 | 751    | 5230  | 48 | 20 | 3609   | 55830 | 48 | 20 | 3628.8 | 56028 | 66 | 20 | 2155   | 66886 | 22.86 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 13 | 10 | 751    | 5230  | 48 | 20 | 3609   | 55830 | 48 | 20 | 3628.8 | 56028 | 48 | 20 | 3648.6 | 56226 | 22.88 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 13 | 10 | 751    | 5230  | 66 | 20 | 2155   | 66886 | 66 | 5  | 2197.5 | 67311 | 66 | 20 | 2209.2 | 67428 | 23.18 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 13 | 10 | 751    | 5230  | 66 | 20 | 2155   | 66886 | 66 | 20 | 2174.8 | 67084 | 66 | 20 | 2194.6 | 67282 | 22.85 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 14 | 10 | 763    | 5330  | 30 | 10 | 2355   | 9820  | 66 | 20 | 2155   | 66886 | 66 | 5  | 2197.5 | 67311 | 23.23 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 14 | 10 | 763    | 5330  | 66 | 20 | 2155   | 66886 | 66 | 5  | 2197.5 | 67311 | 66 | 20 | 2120   | 66536 | 23.00 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 48 | 20 | 3609   | 55830 | 48 | 5  | 3697.5 | 56715 | 48 | 20 | 3709.2 | 56832 | 66 | 20 | 2155   | 66886 | 22.86 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 48 | 20 | 3609   | 55830 | 48 | 5  | 3697.5 | 56715 | 48 | 20 | 3709.2 | 56832 | 48 | 20 | 3729   | 57030 | 22.99 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 48 | 20 | 3609   | 55830 | 48 | 20 | 3628.8 | 56028 | 48 | 5  | 3697.5 | 56715 | 48 | 20 | 3709.2 | 56832 | 23.07 | 23.04 |
| 2  | 20 | 1860   | 18700 | QPSK | 1 | 0 | 48 | 20 | 3609   | 55830 | 48 | 20 | 3628.8 | 56028 | 48 | 20 | 3648.6 | 56226 | 66 | 20 | 2155   | 66886 | 22.95 | 23.04 |
| 4  | 20 | 1720   | 20050 | QPSK | 1 | 0 | 4  | 5  | 2112.5 | 1975  | 5  | 10 | 881.5  | 2525  | 5  | 10 | 891.4  | 2624  | 30 | 10 | 2355   | 9820  | 23.24 | 23.18 |
| 4  | 20 | 1720   | 20050 | QPSK | 1 | 0 | 48 | 20 | 3609   | 55830 | 48 | 20 | 3628.8 | 56028 | 48 | 20 | 3648.6 | 56226 | 48 | 20 | 3668.4 | 56424 | 23.07 | 23.18 |
| 5  | 10 | 844    | 20600 | QPSK | 1 | 0 | 5  | 10 | 834.1  | 2501  | 66 | 20 | 2155   | 66886 | 66 | 5  | 2197.5 | 67311 | 66 | 20 | 2209.2 | 67428 | 23.22 | 23.28 |
| 5  | 10 | 844    | 20600 | QPSK | 1 | 0 | 5  | 10 | 834.1  | 2501  | 30 | 10 | 2355   | 9820  | 66 | 20 | 2155   | 66886 | 66 | 5  | 2197.5 | 67311 | 23.11 | 23.28 |
| 5  | 10 | 844    | 20600 | QPSK | 1 | 0 | 48 | 20 | 3609   | 55830 | 48 | 5  | 3697.5 | 56715 | 48 | 20 | 3709.2 | 56832 | 66 | 20 | 2155   | 66886 | 23.13 | 23.28 |
| 5  | 10 | 844    | 20600 | QPSK | 1 | 0 | 48 | 20 | 3609   | 55830 | 48 | 20 | 3628.8 | 56028 | 48 | 5  | 3697.5 | 56715 | 48 | 20 | 3709.2 | 56832 | 23.26 | 23.28 |
| 5  | 10 | 844    | 20600 | QPSK | 1 | 0 | 48 | 20 | 3609   | 55830 | 48 | 20 | 3628.8 | 56028 | 48 | 20 | 3648.6 | 56226 | 48 | 20 | 3668.4 | 56424 | 23.33 | 23.28 |
| 5  | 10 | 844    | 20600 | QPSK | 1 | 0 | 48 | 20 | 3609   | 55830 | 48 | 5  | 3697.5 | 56715 | 48 | 20 | 3709.2 | 56832 | 48 | 20 | 3729   | 57030 | 23.41 | 23.28 |
| 5  | 10 | 844    | 20600 | QPSK | 1 | 0 | 48 | 20 | 3609   | 55830 | 48 | 20 | 3628.8 | 56028 | 48 | 20 | 3648.6 | 56226 | 66 | 20 | 2155   | 66886 | 23.26 | 23.28 |
| 13 | 10 | 782    | 23230 | QPSK | 1 | 0 | 48 | 20 | 3609   | 55830 | 48 | 5  | 3697.5 | 56715 | 48 | 20 | 3709.2 | 56832 | 66 | 20 | 2155   | 66886 | 23.13 | 23.27 |
| 13 | 10 | 782    | 23230 | QPSK | 1 | 0 | 48 | 20 | 3609   | 55830 | 48 | 5  | 3697.5 | 56715 | 48 | 20 | 3709.2 | 56832 | 48 | 20 | 3729   | 57030 | 23.48 | 23.27 |
| 13 | 10 | 782    | 23230 | QPSK | 1 | 0 | 48 | 20 | 3609   | 55830 | 48 | 20 | 3628.8 | 56028 | 48 | 5  | 3697.5 | 56715 | 48 | 20 | 3709.2 | 56832 | 23.26 | 23.27 |
| 13 | 10 | 782    | 23230 | QPSK | 1 | 0 | 48 | 20 | 3609   | 55830 | 48 | 20 | 3628.8 | 56028 | 66 | 20 | 2155   | 66886 | 66 | 20 | 2174.8 | 67084 | 23.24 | 23.27 |
| 13 | 10 | 782    | 23230 | QPSK | 1 | 0 | 48 | 20 | 3609   | 55830 | 48 | 20 | 3628.8 | 56028 | 48 | 20 | 3648.6 | 56226 | 66 | 20 | 2155   | 66886 | 23.25 | 23.27 |
| 25 | 20 | 1905   | 26590 | QPSK | 1 | 0 | 25 | 5  | 1932.5 | 8065  | 41 | 20 | 2593   | 40620 | 41 | 20 | 2612.8 | 40818 | 41 | 20 | 2632.6 | 41016 | 23.08 | 22.91 |
| 25 | 20 | 1905   | 26590 | QPSK | 1 | 0 | 41 | 20 | 2593   | 40620 | 41 | 20 | 2612.8 | 40818 | 41 | 20 | 2632.6 | 41016 | 41 | 20 | 2652.4 | 41214 | 23.11 | 22.91 |
| 41 | 20 | 2549.5 | 40185 | QPSK | 1 | 0 | 41 | 20 | 2569.3 | 40383 | 41 | 5  | 2687.5 | 41565 | 41 | 20 | 2675.8 | 41448 | 41 | 20 | 2656   | 41250 | 22.94 | 23.07 |
| 41 | 20 | 2549.5 | 40185 | QPSK | 1 | 0 | 41 | 20 | 2569.3 | 40383 | 42 | 20 | 3575   | 43340 | 42 | 5  | 3597.5 | 43565 | 42 | 20 | 3609.2 | 43682 | 22.97 | 23.07 |
| 41 | 20 | 2549.5 | 40185 | QPSK | 1 | 0 | 41 | 20 | 2569.3 | 40383 | 41 | 20 | 2589.1 | 40581 | 42 | 20 | 3575   | 43340 | 42 | 20 | 3594.8 | 43538 | 22.95 | 23.07 |
| 41 | 20 | 2549.5 | 40185 | QPSK | 1 | 0 | 42 | 20 | 3575   | 43340 | 42 | 20 | 3594.8 | 43538 | 42 | 5  | 3597.5 | 43565 | 42 | 20 | 3609.2 | 43682 | 22.92 | 23.07 |
| 48 | 20 | 3560   | 55340 | QPSK | 1 | 0 | 48 | 5  | 3697.5 | 56715 | 48 | 20 | 3685.8 | 56598 | 66 | 20 | 2155   | 66886 | 66 | 20 | 2174.8 | 67084 | 20.54 | 20.72 |
| 48 | 20 | 3560   | 55340 | QPSK | 1 | 0 | 48 | 5  | 3697.5 | 56715 | 48 | 20 | 3709.2 | 56832 | 48 | 20 | 3729   | 57030 | 66 | 20 | 2155   | 66886 | 20.54 | 20.72 |
| 48 | 20 | 3560   | 55340 | QPSK | 1 | 0 | 48 | 20 | 3579.8 | 55538 | 48 | 5  | 3697.5 | 56715 | 48 | 20 | 3685.8 | 56598 | 66 | 20 | 2155   | 66886 | 20.54 | 20.72 |
| 48 | 20 | 3560   | 55340 | QPSK | 1 | 0 | 48 | 20 | 3579.8 | 55538 | 48 | 5  | 3697.5 | 56715 | 48 | 20 | 3685.8 | 56598 | 48 | 20 | 3666   | 56400 | 20.67 | 20.72 |
| 48 | 20 | 3560   | 55340 | QPSK | 1 | 0 | 48 | 20 | 3579.8 | 55538 | 66 | 20 | 2155   | 66886 | 66 | 5  | 2197.5 | 67311 | 66 | 20 | 2120   | 66536 | 20.93 | 20.72 |
| 48 | 20 | 3560   | 55340 | QPSK | 1 | 0 | 48 | 20 | 3579.8 | 55538 | 48 | 20 | 3599.6 | 55736 | 48 | 20 | 3619.4 | 55934 | 66 | 20 | 2155   | 66886 | 20.90 | 20.72 |
| 48 | 20 | 3560   | 55340 | QPSK | 1 | 0 | 48 | 20 | 3579.8 | 55538 | 48 | 20 | 3599.6 | 55736 | 48 | 20 | 3619.4 | 55934 | 48 | 20 | 3639.2 | 56132 | 20.75 | 20.72 |

**<Six Carrier power verification>**

| Configure  | PCC      |          |                |            |      |     |              | SCC1     |          |                |            | SCC2     |          |                |            | SCC3     |          |                |            | SCC4     |          |                |            | SCC5     |          | Power          |            |                        |                       |
|------------|----------|----------|----------------|------------|------|-----|--------------|----------|----------|----------------|------------|----------|----------|----------------|------------|----------|----------|----------------|------------|----------|----------|----------------|------------|----------|----------|----------------|------------|------------------------|-----------------------|
|            | LTE Band | BW (MHz) | UL Freq. (MHz) | UL Channel | Mod. | UL# | UL RB Offset | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | With CA Tx.Power (dBm) | W/O CA Tx.Power (dBm) |
| Inter-Band | 2        | 20       | 1860           | 18700      | QPSK | 1   | 0            | 48       | 20       | 3609           | 55830      | 48       | 20       | 3628.8         | 56028      | 48       | 20       | 3648.6         | 56226      | 48       | 20       | 3668.4         | 56424      | 66       | 20       | 2155           | 66886      | 23.14                  | 23.04                 |
|            | 13       | 10       | 782            | 23230      | QPSK | 1   | 0            | 48       | 20       | 3609           | 55830      | 48       | 20       | 3628.8         | 56028      | 48       | 20       | 3648.6         | 56226      | 48       | 20       | 3668.4         | 56424      | 66       | 20       | 2155           | 66886      | 23.41                  | 23.27                 |
|            | 41       | 20       | 2549.5         | 40185      | QPSK | 1   | 0            | 41       | 20       | 2569.3         | 40383      | 42       | 20       | 3575           | 43340      | 42       | 20       | 3594.8         | 43538      | 42       | 5        | 3597.5         | 43565      | 42       | 20       | 3609.2         | 43682      | 23.22                  | 23.07                 |

**<LTE Uplink carrier aggregation>**

| 2CC Uplink Carrier Aggregation |             |
|--------------------------------|-------------|
| Number                         | Combination |
| 1                              | 5B          |
| 2                              | 7C          |
| 3                              | 38C         |
| 4                              | 41C         |
| 5                              | 48C         |
| 6                              | 66B         |
| 7                              | 66C         |

**<Intra-band>**

**General Note:**

- i. The device supports intra-band uplink carrier aggregation for LTE B5/B7/B66/B38/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.
- ii. 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.
- iii. 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.
- iv. Additional SAR measurement for LTE UL CA whit 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.

| CA_5B_Main                          |             |            |         |           |         |           |               |                       |                      |  |
|-------------------------------------|-------------|------------|---------|-----------|---------|-----------|---------------|-----------------------|----------------------|--|
| Combination 10MHz+10MHz (50RB+50RB) |             |            |         |           |         |           |               |                       |                      |  |
| PCC Channel                         | SCC Channel | Modulation | PCC     |           | SCC     |           | Total RB Size | Target MPR Level (dB) | Measured Power (dBm) | Tune up Power (dBm)<br>Typ. target power with tolerance: +1dbm |
|                                     |             |            | RB Size | RB offset | RB Size | RB offset |               |                       |                      |  |
| 20450                               | 20549       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | 23.05                | 24.5   |
| 20575                               | 20476       | QPSK       | 1       | 0         | 1       | 49        | 2             | 0                     | 23.17                | 24.5   |
| 20600                               | 20501       | QPSK       | 1       | 0         | 1       | 49        | 2             | 0                     | 23.09                | 24.5   |

| CA_7C_Main                            |             |            |         |           |         |           |               |                       |                      |  |
|---------------------------------------|-------------|------------|---------|-----------|---------|-----------|---------------|-----------------------|----------------------|--|
| 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)<br>Typ. target power with tolerance: +1dbm |
|                                       |             |            | RB Size | RB offset | RB Size | RB offset |               |                       |                      |  |
| 20850                                 | 21048       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | 22.8                 | 24   |
| 21100                                 | 20902       | QPSK       | 1       | 0         | 1       | 99        | 2             | 0                     | 23.01                | 24   |
| 21350                                 | 21152       | QPSK       | 1       | 0         | 1       | 99        | 2             | 0                     | 22.88                | 24   |



| CA_66B_Main                        |             |            |         |           |         |           |               |                       |                      |  |
|------------------------------------|-------------|------------|---------|-----------|---------|-----------|---------------|-----------------------|----------------------|--|
| Combination 15MHz+5MHz (75RB+25RB) |             |            |         |           |         |           |               |                       |                      |  |
| PCC Channel                        | SCC Channel | Modulation | PCC     |           | SCC     |           | Total RB Size | Target MPR Level (dB) | Measured Power (dBm) | Tune up Power (dBm)<br>Typ. target power with tolerance: +1dbm |
|                                    |             |            | RB Size | RB offset | RB Size | RB offset |               |                       |                      |  |
| 132047                             | 132140      | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | 23.69                | 24   |
| 132322                             | 132229      | QPSK       | 1       | 0         | 1       | 24        | 2             | 0                     | 23.64                | 24   |
| 132597                             | 132504      | QPSK       | 1       | 0         | 1       | 24        | 2             | 0                     | 23.48                | 24   |

| CA_66C_Main                           |             |            |         |           |         |           |               |                       |                      |  |
|---------------------------------------|-------------|------------|---------|-----------|---------|-----------|---------------|-----------------------|----------------------|--|
| 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)<br>Typ. target power with tolerance: +1dbm |
|                                       |             |            | RB Size | RB offset | RB Size | RB offset |               |                       |                      |  |
| 132072                                | 132270      | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | 23.13                | 24   |
| 132322                                | 132124      | QPSK       | 1       | 0         | 1       | 99        | 2             | 0                     | 22.89                | 24   |
| 132572                                | 132374      | QPSK       | 1       | 0         | 1       | 99        | 2             | 0                     | 22.83                | 24   |

| CA_38C                                |             |            |         |           |         |           |               |                       |                      |  |
|---------------------------------------|-------------|------------|---------|-----------|---------|-----------|---------------|-----------------------|----------------------|--|
| 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)<br>Typ. target power with tolerance: +1dbm |
|                                       |             |            | RB Size | RB offset | RB Size | RB offset |               |                       |                      |  |
| 37850                                 | 38048       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | 22.85                | 24   |
| 37901                                 | 38099       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | 22.71                | 24   |
| 38150                                 | 37952       | QPSK       | 1       | 0         | 1       | 99        | 2             | 0                     | 22.75                | 24   |

| CA_41C_Main                           |             |            |         |           |         |           |               |                       |                      |  |
|---------------------------------------|-------------|------------|---------|-----------|---------|-----------|---------------|-----------------------|----------------------|--|
| 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)<br>Typ. target power with tolerance: +1dbm |
|                                       |             |            | RB Size | RB offset | RB Size | RB offset |               |                       |                      |  |
| 39750                                 | 39948       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | 22.89                | 24   |
| 40185                                 | 39987       | QPSK       | 1       | 0         | 1       | 99        | 2             | 0                     | 23.05                | 24   |
| 40620                                 | 40422       | QPSK       | 1       | 0         | 1       | 99        | 2             | 0                     | 22.88                | 24   |

| CA_48C_Aux 2                          |             |            |         |           |         |           |               |                       |                      |  |
|---------------------------------------|-------------|------------|---------|-----------|---------|-----------|---------------|-----------------------|----------------------|--|
| 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)<br>Typ. target power with tolerance: +1dbm |
|                                       |             |            | RB Size | RB offset | RB Size | RB offset |               |                       |                      |  |
| 55340                                 | 55538       | QPSK       | 1       | 0         | 0       | 0         | 1             | 0                     | 20.68                | 22   |
| 55830                                 | 55632       | QPSK       | 1       | 0         | 1       | 99        | 2             | 0                     | 20.41                | 22   |
| 56150                                 | 55952       | QPSK       | 1       | 0         | 1       | 99        | 2             | 0                     | 20.16                | 22   |

## 11. 5G NR Output Power (Unit: dBm)

**General Note:**

1. Referencing the procedure in KDB 941225, the test procedures are outlined as below
  - a. For DFT-OFDM output power measurement, full measurement was done for Pi/2 BPSK and QPSK and for the largest supported bandwidth, repeat test for 16QAM/64QAM/256QAM under 1RB 1Offset configuration. For smaller bandwidth, measure conducted power for Pi/2 BPSK and 1RB 1Offset configuration.
  - b. According to the tune-up, CP-OFDM output power is not ½ dB higher than DFT-OFDM mode, and the reported SAR of DFT-OFDM mode reported SAR is ≤ 1.45 W/kg, SAR test and thus conducted power for CP-OFDM mode is not required.
  - c. To start SAR test for the largest channel bandwidth 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. Also do SAR test for 50% RB allocation for Pi/2 BPSK SAR testing using 1RB Pi/2 BPSK allocation procedure
  - d. For Pi/2 BPSK with 100% RB allocation, SAR test 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.
  - e. For higher modulation QPSK/16QAM/64QAM/256QAM, according to tune-up document the power level is 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.
  - f. Smaller bandwidth output power for each RB allocation configuration for this device is 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                |                      |





<n2 Main>

| 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         |            |         |           | 372000                | 376000                   | 380000                 |                     |          |
| Frequency (MHz) |            |         |           | 1860                  | 1880                     | 1900                   |                     |          |
| 20              | PI/2 BPSK  | 1       | 1         | 23.23                 | 23.28                    | 23.27                  |                     |          |
| 20              | PI/2 BPSK  | 1       | 53        | 23.01                 | 22.93                    | 22.95                  | 24.0                | 0.0      |
| 20              | PI/2 BPSK  | 1       | 104       | 22.88                 | 22.94                    | 22.84                  |                     |          |
| 20              | PI/2 BPSK  | 50      | 0         | 23.01                 | 23.05                    | 22.91                  |                     |          |
| 20              | PI/2 BPSK  | 50      | 28        | 22.99                 | 22.99                    | 22.89                  | 24.0                | 0.0      |
| 20              | PI/2 BPSK  | 50      | 56        | 22.92                 | 22.95                    | 22.87                  | 23.5                | 0.5      |
| 20              | PI/2 BPSK  | 100     | 0         | 22.93                 | 23.02                    | 23.00                  |                     |          |
| 20              | QPSK       | 1       | 1         | 22.73                 | 22.77                    | 22.72                  | 24.0                | 0.0      |
| 20              | QPSK       | 1       | 53        | 23.10                 | 23.11                    | 23.02                  |                     |          |
| 20              | QPSK       | 1       | 104       | 22.90                 | 22.95                    | 22.90                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.56                 | 22.59                    | 22.53                  | 23.0                | 1.0      |
| 20              | QPSK       | 50      | 28        | 23.03                 | 23.06                    | 23.03                  | 24.0                | 0.0      |
| 20              | QPSK       | 50      | 56        | 22.53                 | 22.63                    | 22.61                  | 23.0                | 1.0      |
| 20              | QPSK       | 100     | 0         | 22.45                 | 22.54                    | 22.46                  |                     |          |
| 20              | 16QAM      | 1       | 1         | 22.41                 | 22.51                    | 22.42                  | 23.0                | 1.0      |
| 20              | 64QAM      | 1       | 1         | 20.89                 | 20.90                    | 20.84                  | 21.5                | 2.5      |
| 20              | 256QAM     | 1       | 1         | 18.77                 | 18.77                    | 18.70                  | 19.5                | 4.5      |
| Channel         |            |         |           | 371500                | 376000                   | 380500                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1857.5                | 1880                     | 1902.5                 |                     |          |
| 15              | PI/2 BPSK  | 1       | 1         | 22.93                 | 22.88                    | 22.89                  | 24.0                | 0.0      |
| Channel         |            |         |           | 371000                | 376000                   | 381000                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1855                  | 1880                     | 1905                   |                     |          |
| 10              | PI/2 BPSK  | 1       | 1         | 22.83                 | 22.84                    | 22.79                  | 24.0                | 0.0      |
| Channel         |            |         |           | 370500                | 376000                   | 381500                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1852.5                | 1880                     | 1907.5                 |                     |          |
| 5               | PI/2 BPSK  | 1       | 1         | 22.75                 | 22.76                    | 22.69                  | 24.0                | 0.0      |



<n2 Aux 2>

| 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         |            |         |           | 372000                | 376000                   | 380000                 |                     |          |
| Frequency (MHz) |            |         |           | 1860                  | 1880                     | 1900                   |                     |          |
| 20              | PI/2 BPSK  | 1       | 1         | 23.24                 | 23.32                    | 23.26                  |                     |          |
| 20              | PI/2 BPSK  | 1       | 53        | 23.20                 | 23.20                    | 23.16                  | 24.0                | 0.0      |
| 20              | PI/2 BPSK  | 1       | 104       | 22.85                 | 22.95                    | 22.91                  |                     |          |
| 20              | PI/2 BPSK  | 50      | 0         | 23.05                 | 23.11                    | 22.98                  |                     |          |
| 20              | PI/2 BPSK  | 50      | 28        | 22.64                 | 22.94                    | 22.77                  | 24.0                | 0.0      |
| 20              | PI/2 BPSK  | 50      | 56        | 22.83                 | 22.85                    | 22.83                  | 23.5                | 0.5      |
| 20              | PI/2 BPSK  | 100     | 0         | 22.39                 | 22.41                    | 22.38                  |                     |          |
| 20              | QPSK       | 1       | 1         | 22.57                 | 22.58                    | 22.58                  | 24.0                | 0.0      |
| 20              | QPSK       | 1       | 53        | 23.12                 | 23.17                    | 23.16                  |                     |          |
| 20              | QPSK       | 1       | 104       | 22.94                 | 23.03                    | 23.01                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.21                 | 22.22                    | 22.15                  | 23.0                | 1.0      |
| 20              | QPSK       | 50      | 28        | 23.23                 | 23.26                    | 23.17                  | 24.0                | 0.0      |
| 20              | QPSK       | 50      | 56        | 22.43                 | 22.44                    | 22.37                  | 23.0                | 1.0      |
| 20              | QPSK       | 100     | 0         | 22.31                 | 22.35                    | 22.28                  |                     |          |
| 20              | 16QAM      | 1       | 1         | 21.33                 | 21.35                    | 21.27                  | 23.0                | 1.0      |
| 20              | 64QAM      | 1       | 1         | 20.45                 | 20.51                    | 20.45                  | 21.5                | 2.5      |
| 20              | 256QAM     | 1       | 1         | 18.23                 | 18.28                    | 18.21                  | 19.5                | 4.5      |
| Channel         |            |         |           | 371500                | 376000                   | 380500                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1857.5                | 1880                     | 1902.5                 |                     |          |
| 15              | PI/2 BPSK  | 1       | 1         | 22.59                 | 22.85                    | 22.69                  | 24.0                | 0.0      |
| Channel         |            |         |           | 371000                | 376000                   | 381000                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1855                  | 1880                     | 1905                   |                     |          |
| 10              | PI/2 BPSK  | 1       | 1         | 22.57                 | 22.79                    | 22.63                  | 24.0                | 0.0      |
| Channel         |            |         |           | 370500                | 376000                   | 381500                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1852.5                | 1880                     | 1907.5                 |                     |          |
| 5               | PI/2 BPSK  | 1       | 1         | 22.56                 | 22.74                    | 22.63                  | 24.0                | 0.0      |



<n5 Main>

| 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         |            |         |           | 166800                | 167300                   | 167800                 |                     |          |
| Frequency (MHz) |            |         |           | 834                   | 836.5                    | 839                    |                     |          |
| 20              | PI/2 BPSK  | 1       | 1         | 23.11                 | 23.14                    | 23.10                  | 24.0                | 0.0      |
| 20              | PI/2 BPSK  | 1       | 53        | 23.05                 | 23.05                    | 22.91                  |                     |          |
| 20              | PI/2 BPSK  | 1       | 104       | 22.77                 | 22.77                    | 22.77                  |                     |          |
| 20              | PI/2 BPSK  | 50      | 0         | 22.94                 | 23.00                    | 22.92                  | 23.5                | 0.5      |
| 20              | PI/2 BPSK  | 50      | 28        | 22.89                 | 22.89                    | 22.88                  | 24.0                | 0.0      |
| 20              | PI/2 BPSK  | 50      | 56        | 22.79                 | 22.88                    | 22.85                  | 23.5                | 0.5      |
| 20              | PI/2 BPSK  | 100     | 0         | 22.84                 | 22.92                    | 22.86                  |                     |          |
| 20              | QPSK       | 1       | 1         | 22.84                 | 22.91                    | 22.82                  | 24.0                | 0.0      |
| 20              | QPSK       | 1       | 53        | 22.94                 | 23.02                    | 22.99                  |                     |          |
| 20              | QPSK       | 1       | 104       | 22.76                 | 22.76                    | 22.69                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.90                 | 22.95                    | 22.92                  | 23.0                | 1.0      |
| 20              | QPSK       | 50      | 28        | 22.90                 | 22.96                    | 22.86                  | 24.0                | 0.0      |
| 20              | QPSK       | 50      | 56        | 22.84                 | 22.89                    | 22.89                  | 23.0                | 1.0      |
| 20              | QPSK       | 100     | 0         | 22.89                 | 22.89                    | 22.82                  |                     |          |
| 20              | 16QAM      | 1       | 1         | 23.08                 | 23.12                    | 23.11                  | 23.0                | 1.0      |
| 20              | 64QAM      | 1       | 1         | 21.60                 | 21.61                    | 21.59                  | 21.5                | 2.5      |
| 20              | 256QAM     | 1       | 1         | 19.51                 | 19.51                    | 19.41                  | 19.5                | 4.5      |
| Channel         |            |         |           | 166300                | 167300                   | 168300                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 831.5                 | 836.5                    | 841.5                  |                     |          |
| 15              | PI/2 BPSK  | 1       | 1         | 23.00                 | 22.98                    | 22.84                  | 24.0                | 0.0      |
| Channel         |            |         |           | 165800                | 167300                   | 168800                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 829                   | 836.5                    | 844                    |                     |          |
| 10              | PI/2 BPSK  | 1       | 1         | 22.94                 | 22.94                    | 22.77                  | 24.0                | 0.0      |
| Channel         |            |         |           | 165300                | 167300                   | 169300                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 826.5                 | 836.5                    | 846.5                  |                     |          |
| 5               | PI/2 BPSK  | 1       | 1         | 22.93                 | 22.84                    | 22.70                  | 24.0                | 0.0      |



<n7 Aux 2>

| 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         |            |         |           | 502000                | 507000                   | 512000                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2510                  | 2535                     | 2560                   |                     |          |
| 20              | PI/2 BPSK  | 1       | 1         | 22.63                 | 22.65                    | 22.55                  | 24.0                | 0.0      |
| 20              | PI/2 BPSK  | 1       | 53        | 22.32                 | 22.35                    | 22.50                  |                     |          |
| 20              | PI/2 BPSK  | 1       | 104       | 22.44                 | 22.52                    | 22.43                  |                     |          |
| 20              | PI/2 BPSK  | 50      | 0         | 22.60                 | 22.61                    | 22.48                  | 23.5                | 0.5      |
| 20              | PI/2 BPSK  | 50      | 28        | 22.55                 | 22.58                    | 22.43                  | 24.0                | 0.0      |
| 20              | PI/2 BPSK  | 50      | 56        | 22.54                 | 22.59                    | 22.41                  | 23.5                | 0.5      |
| 20              | PI/2 BPSK  | 100     | 0         | 22.44                 | 22.47                    | 22.40                  |                     |          |
| 20              | QPSK       | 1       | 1         | 22.39                 | 22.43                    | 22.33                  | 24.0                | 0.0      |
| 20              | QPSK       | 1       | 53        | 22.49                 | 22.59                    | 22.57                  |                     |          |
| 20              | QPSK       | 1       | 104       | 22.48                 | 22.55                    | 22.54                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.04                 | 22.14                    | 22.04                  | 23.0                | 1.0      |
| 20              | QPSK       | 50      | 28        | 22.55                 | 22.56                    | 22.51                  | 24.0                | 0.0      |
| 20              | QPSK       | 50      | 56        | 22.16                 | 22.18                    | 22.11                  | 23.0                | 1.0      |
| 20              | QPSK       | 100     | 0         | 21.86                 | 21.89                    | 21.88                  |                     |          |
| 20              | 16QAM      | 1       | 1         | 22.01                 | 22.04                    | 21.97                  | 23.0                | 1.0      |
| 20              | 64QAM      | 1       | 1         | 20.66                 | 20.66                    | 20.59                  | 21.5                | 2.5      |
| 20              | 256QAM     | 1       | 1         | 18.11                 | 18.21                    | 18.19                  | 19.5                | 4.5      |
| Channel         |            |         |           | 501500                | 507000                   | 512500                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2507.5                | 2535                     | 2562.5                 |                     |          |
| 15              | PI/2 BPSK  | 1       | 1         | 22.10                 | 22.29                    | 22.47                  | 24.0                | 0.0      |
| Channel         |            |         |           | 501000                | 507000                   | 513000                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2505                  | 2535                     | 2565                   |                     |          |
| 10              | PI/2 BPSK  | 1       | 1         | 22.09                 | 22.22                    | 22.41                  | 24.0                | 0.0      |
| Channel         |            |         |           | 500500                | 507000                   | 513500                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2502.5                | 2535                     | 2567.5                 |                     |          |
| 5               | PI/2 BPSK  | 1       | 1         | 22.07                 | 22.18                    | 22.39                  | 24.0                | 0.0      |



<n12 Main>

| 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         |            |         |           | 141300                | 141500                   | 141700                 | 24.0                | 0.0      |
| Frequency (MHz) |            |         |           | 706.5                 | 707.5                    | 708.5                  |                     |          |
| 15              | PI/2 BPSK  | 1       | 1         | 23.10                 | 23.12                    | 23.10                  |                     |          |
| 15              | PI/2 BPSK  | 1       | 40        | 22.87                 | 22.89                    | 22.84                  | 23.5                | 0.5      |
| 15              | PI/2 BPSK  | 1       | 77        | 22.65                 | 22.72                    | 22.68                  |                     |          |
| 15              | PI/2 BPSK  | 36      | 0         | 22.81                 | 22.91                    | 22.87                  |                     |          |
| 15              | PI/2 BPSK  | 36      | 22        | 22.79                 | 22.87                    | 22.84                  | 24.0                | 0.0      |
| 15              | PI/2 BPSK  | 36      | 43        | 22.76                 | 22.77                    | 22.70                  |                     |          |
| 15              | PI/2 BPSK  | 75      | 0         | 22.71                 | 22.77                    | 22.75                  |                     |          |
| 15              | QPSK       | 1       | 1         | 23.02                 | 22.94                    | 22.99                  | 24.0                | 0.0      |
| 15              | QPSK       | 1       | 40        | 22.67                 | 22.75                    | 22.67                  |                     |          |
| 15              | QPSK       | 1       | 77        | 22.66                 | 22.68                    | 22.58                  |                     |          |
| 15              | QPSK       | 36      | 0         | 22.75                 | 22.82                    | 22.79                  | 23.0                | 1.0      |
| 15              | QPSK       | 36      | 22        | 22.80                 | 22.83                    | 22.79                  |                     |          |
| 15              | QPSK       | 36      | 43        | 22.68                 | 22.71                    | 22.70                  |                     |          |
| 15              | QPSK       | 75      | 0         | 22.64                 | 22.73                    | 22.69                  | 23.0                | 1.0      |
| 15              | 16QAM      | 1       | 1         | 22.93                 | 22.99                    | 22.97                  |                     |          |
| 15              | 64QAM      | 1       | 1         | 21.45                 | 21.49                    | 21.48                  |                     |          |
| 15              | 256QAM     | 1       | 1         | 19.54                 | 19.63                    | 19.63                  | 19.5                | 4.5      |
| Channel         |            |         |           | 140800                | 141500                   | 142200                 | 24.0                | 0.0      |
| Frequency (MHz) |            |         |           | 704                   | 707.5                    | 711                    |                     |          |
| 10              | PI/2 BPSK  | 1       | 1         | 22.97                 | 22.90                    | 22.92                  | 24.0                | 0.0      |
| Channel         |            |         |           | 140300                | 141500                   | 142700                 |                     |          |
| Frequency (MHz) |            |         |           | 701.5                 | 707.5                    | 713.5                  | 24.0                | 0.0      |
| 5               | PI/2 BPSK  | 1       | 1         | 22.94                 | 22.82                    | 22.91                  |                     |          |



<n41 Aux 2>

| 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         |            |         |           | 509202                | 518598                   | 528000                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2546.01               | 2592.99                  | 2640                   |                     |          |
| 100             | PI/2 BPSK  | 1       | 1         | 23.09                 | 23.17                    | 23.05                  | 24.0                | 0.0      |
| 100             | PI/2 BPSK  | 1       | 137       | 22.76                 | 22.83                    | 22.82                  |                     |          |
| 100             | PI/2 BPSK  | 1       | 271       | 22.44                 | 22.52                    | 22.52                  |                     |          |
| 100             | PI/2 BPSK  | 135     | 0         | 22.80                 | 22.85                    | 22.81                  | 23.5                | 0.5      |
| 100             | PI/2 BPSK  | 135     | 69        | 22.82                 | 22.81                    | 22.84                  | 24.0                | 0.0      |
| 100             | PI/2 BPSK  | 135     | 138       | 22.57                 | 22.62                    | 22.60                  | 23.5                | 0.5      |
| 100             | PI/2 BPSK  | 270     | 0         | 22.80                 | 22.84                    | 22.74                  |                     |          |
| 100             | QPSK       | 1       | 1         | 22.76                 | 22.81                    | 22.79                  | 24.0                | 0.0      |
| 100             | QPSK       | 1       | 137       | 22.75                 | 22.76                    | 22.72                  |                     |          |
| 100             | QPSK       | 1       | 271       | 22.42                 | 22.52                    | 22.47                  |                     |          |
| 100             | QPSK       | 135     | 0         | 23.06                 | 23.12                    | 23.09                  | 23.0                | 1.0      |
| 100             | QPSK       | 135     | 69        | 22.90                 | 22.97                    | 22.95                  | 24.0                | 0.0      |
| 100             | QPSK       | 135     | 138       | 22.98                 | 23.04                    | 23.04                  | 23.0                | 1.0      |
| 100             | QPSK       | 270     | 0         | 22.60                 | 22.61                    | 22.53                  |                     |          |
| 100             | 16QAM      | 1       | 1         | 22.12                 | 22.21                    | 22.19                  | 23.0                | 1.0      |
| 100             | 64QAM      | 1       | 1         | 21.38                 | 21.45                    | 21.43                  | 21.5                | 2.5      |
| 100             | 256QAM     | 1       | 1         | 20.54                 | 20.54                    | 20.50                  | 19.5                | 4.5      |
| Channel         |            |         |           | 508200                | 518598                   | 528996                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2541                  | 2592.99                  | 2644.98                |                     |          |
| 90              | PI/2 BPSK  | 1       | 1         | 22.86                 | 22.74                    | 22.68                  | 24.0                | 0.0      |
| Channel         |            |         |           | 507204                | 518598                   | 529998                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2536.02               | 2592.99                  | 2649.99                |                     |          |
| 80              | PI/2 BPSK  | 1       | 1         | 22.80                 | 22.67                    | 22.63                  | 24.0                | 0.0      |
| Channel         |            |         |           | 505200                | 518598                   | 531996                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2526                  | 2592.99                  | 2659.98                |                     |          |
| 60              | PI/2 BPSK  | 1       | 1         | 22.75                 | 22.59                    | 22.47                  | 24.0                | 0.0      |
| Channel         |            |         |           | 504204                | 518598                   | 532998                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2521.02               | 2592.99                  | 2664.99                |                     |          |
| 50              | PI/2 BPSK  | 1       | 1         | 22.66                 | 22.50                    | 22.39                  | 24.0                | 0.0      |
| Channel         |            |         |           | 503202                | 518598                   | 534000                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2516.01               | 2592.99                  | 2670                   |                     |          |
| 40              | PI/2 BPSK  | 1       | 1         | 22.61                 | 22.47                    | 22.38                  | 24.0                | 0.0      |
| Channel         |            |         |           | 501204                | 518598                   | 535998                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2506.02               | 2592.99                  | 2679.99                |                     |          |
| 20              | PI/2 BPSK  | 1       | 1         | 22.53                 | 22.31                    | 22.32                  | 24.0                | 0.0      |



<n66 Main>

| 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         |            |         |           | 344000                | 349000                   | 354000                 |                     |          |
| Frequency (MHz) |            |         |           | 1720                  | 1745                     | 1770                   |                     |          |
| 20              | PI/2 BPSK  | 1       | 1         | 23.16                 | 23.17                    | 23.08                  | 24.0                | 0.0      |
| 20              | PI/2 BPSK  | 1       | 53        | 23.10                 | 23.05                    | 22.92                  |                     |          |
| 20              | PI/2 BPSK  | 1       | 104       | 22.84                 | 22.87                    | 22.82                  |                     |          |
| 20              | PI/2 BPSK  | 50      | 0         | 22.89                 | 23.02                    | 22.95                  | 23.5                | 0.5      |
| 20              | PI/2 BPSK  | 50      | 28        | 22.85                 | 22.94                    | 22.90                  | 24.0                | 0.0      |
| 20              | PI/2 BPSK  | 50      | 56        | 22.90                 | 22.91                    | 22.84                  | 23.5                | 0.5      |
| 20              | PI/2 BPSK  | 100     | 0         | 22.83                 | 22.91                    | 22.90                  |                     |          |
| 20              | QPSK       | 1       | 1         | 22.83                 | 22.89                    | 22.85                  | 24.0                | 0.0      |
| 20              | QPSK       | 1       | 53        | 22.95                 | 22.96                    | 22.87                  |                     |          |
| 20              | QPSK       | 1       | 104       | 22.87                 | 22.89                    | 22.88                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.53                 | 22.57                    | 22.57                  | 23.0                | 1.0      |
| 20              | QPSK       | 50      | 28        | 22.80                 | 22.84                    | 22.81                  | 24.0                | 0.0      |
| 20              | QPSK       | 50      | 56        | 22.50                 | 22.53                    | 22.53                  | 23.0                | 1.0      |
| 20              | QPSK       | 100     | 0         | 22.48                 | 22.55                    | 22.53                  |                     |          |
| 20              | 16QAM      | 1       | 1         | 22.03                 | 22.12                    | 22.05                  | 23.0                | 1.0      |
| 20              | 64QAM      | 1       | 1         | 20.98                 | 21.02                    | 20.95                  | 21.5                | 2.5      |
| 20              | 256QAM     | 1       | 1         | 18.88                 | 18.98                    | 18.98                  | 19.5                | 4.5      |
| Channel         |            |         |           | 343500                | 349000                   | 354500                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1717.5                | 1745                     | 1772.5                 |                     |          |
| 15              | PI/2 BPSK  | 1       | 1         | 23.15                 | 22.86                    | 22.89                  | 24.0                | 0.0      |
| Channel         |            |         |           | 343000                | 349000                   | 355000                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1715                  | 1745                     | 1775                   |                     |          |
| 10              | PI/2 BPSK  | 1       | 1         | 23.12                 | 22.76                    | 22.82                  | 24.0                | 0.0      |
| Channel         |            |         |           | 342500                | 349000                   | 355500                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1712.5                | 1745                     | 1777.5                 |                     |          |
| 5               | PI/2 BPSK  | 1       | 1         | 23.07                 | 22.74                    | 22.75                  | 24.0                | 0.0      |



<n66 Aux 2>

| 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         |            |         |           | 344000                | 349000                   | 354000                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1720                  | 1745                     | 1770                   |                     |          |
| 20              | PI/2 BPSK  | 1       | 1         | 22.62                 | 22.74                    | 22.80                  | 24.0                | 0.0      |
| 20              | PI/2 BPSK  | 1       | 53        | 22.54                 | 22.64                    | 22.62                  |                     |          |
| 20              | PI/2 BPSK  | 1       | 104       | 22.48                 | 22.54                    | 22.50                  |                     |          |
| 20              | PI/2 BPSK  | 50      | 0         | 22.52                 | 22.69                    | 22.70                  | 23.5                | 0.5      |
| 20              | PI/2 BPSK  | 50      | 28        | 22.44                 | 22.64                    | 22.55                  | 24.0                | 0.0      |
| 20              | PI/2 BPSK  | 50      | 56        | 22.11                 | 22.18                    | 22.14                  | 23.5                | 0.5      |
| 20              | PI/2 BPSK  | 100     | 0         | 22.23                 | 22.29                    | 22.19                  |                     |          |
| 20              | QPSK       | 1       | 1         | 22.44                 | 22.44                    | 22.44                  | 24.0                | 0.0      |
| 20              | QPSK       | 1       | 53        | 22.66                 | 22.66                    | 22.57                  |                     |          |
| 20              | QPSK       | 1       | 104       | 22.66                 | 22.61                    | 22.66                  |                     |          |
| 20              | QPSK       | 50      | 0         | 21.77                 | 21.78                    | 21.72                  | 23.0                | 1.0      |
| 20              | QPSK       | 50      | 28        | 22.67                 | 22.71                    | 22.62                  | 24.0                | 0.0      |
| 20              | QPSK       | 50      | 56        | 21.59                 | 21.69                    | 21.68                  | 23.0                | 1.0      |
| 20              | QPSK       | 100     | 0         | 21.74                 | 21.79                    | 21.72                  |                     |          |
| 20              | 16QAM      | 1       | 1         | 21.64                 | 21.64                    | 21.56                  | 23.0                | 1.0      |
| 20              | 64QAM      | 1       | 1         | 20.50                 | 20.57                    | 20.53                  | 21.5                | 2.5      |
| 20              | 256QAM     | 1       | 1         | 18.22                 | 18.28                    | 18.21                  | 19.5                | 4.5      |
| Channel         |            |         |           | 343500                | 349000                   | 354500                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1717.5                | 1745                     | 1772.5                 |                     |          |
| 15              | PI/2 BPSK  | 1       | 1         | 22.46                 | 22.66                    | 22.73                  | 24.0                | 0.0      |
| Channel         |            |         |           | 343000                | 349000                   | 355000                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1715                  | 1745                     | 1775                   |                     |          |
| 10              | PI/2 BPSK  | 1       | 1         | 22.39                 | 22.65                    | 22.73                  | 24.0                | 0.0      |
| Channel         |            |         |           | 342500                | 349000                   | 355500                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1712.5                | 1745                     | 1777.5                 |                     |          |
| 5               | PI/2 BPSK  | 1       | 1         | 22.30                 | 22.57                    | 22.72                  | 24.0                | 0.0      |





## 12. WiFi/Bluetooth Output Power (Unit: dBm)

### General Note:

1. For each antenna, transmit power in SISO operation is larger than (or equal to) the power in MIMO operation, RF exposure compliance of MIMO mode can be deduced from the compliance simultaneous transmission of antennas operating in SISO mode.
2. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is  $< 1.6\text{W/kg}$  and SAR peak to location ratio  $\leq 0.04$ , no additional SAR measurements for MIMO.
3. The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures. For "Not required", SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, additional output power measurements were not necessary.
4. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
5. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
6. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
7. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures. 18 The initial test position procedure is described in the following:
  - a. When the reported SAR of the initial test position is  $\leq 0.4\text{ W/kg}$ , further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
  - b. When the reported SAR of the test position is  $> 0.4\text{ W/kg}$ , SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is  $\leq 0.8\text{ W/kg}$  or all required test position are tested.
  - c. For all positions/configurations, when the reported SAR is  $> 0.8\text{ W/kg}$ , SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is  $\leq 1.2\text{ W/kg}$  or all required channels are tested.
8. Per 201904 TCBC workshops, General principles of FCC KDB Publication 248227 D01 can be applied to determine the SAR Initial Test Configurations and test reduction for 802.11ax SAR testing. For the table below the 802.11ax maximum power is SU (non-OFDMA), and the SU maximum power also higher than RU (OFDMA)
9. In applying the test guidance, the IEEE 802.11 mode with the maximum output power (out of all modes) should be considered for testing
10. For modes with the same maximum output power, the guidance from section 5.3.2 a) of FCC KDB Publication 248227 D01 should be applied, with 802.11ax being considered as the highest 802.11 mode for the appropriate frequency bands
11. When SAR testing for 802.11ax is required
  - a. If the maximum output power is highest for OFDMA scenarios, choose the tone size with the maximum number of tones and the highest maximum output power
  - b. Otherwise, consider the fully allocated channel for SAR testing
  - c. When SAR testing is required on RU sizes less than the fully allocated channel, use the RU number closest to the middle of the channel, choosing the higher RU number when two RUs are equidistant to the middle of the channel



<2.4GHz WLAN>

| 2.4GHz WLAN         |         |                 |                     | Ant 1         |              |                     | Ant 2         |              |                     | Ant 1+2       |              |  |
|---------------------|---------|-----------------|---------------------|---------------|--------------|---------------------|---------------|--------------|---------------------|---------------|--------------|--|
| Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % | Average power (dBm) | Tune-Up Limit | Duty Cycle % | Average power (dBm) | Tune-Up Limit | Duty Cycle % |  |
| 802.11b 1Mbps       | 1       | 2412            | 20.60               | 21.50         | 99.50        | 20.90               | 21.50         | 99.50        |                     |               |              |  |
|                     | 6       | 2437            | 21.30               | 21.50         |              | 21.30               | 21.50         |              |                     |               |              |  |
|                     | 11      | 2462            | 21.30               | 21.50         |              | 21.40               | 21.50         |              |                     |               |              |  |
| 802.11g 6Mbps       | 1       | 2412            | Not Required        | 19.00         | Not Required | Not Required        | 19.25         | Not Required | Not Required        |               |              |  |
|                     | 6       | 2437            |                     | 21.00         |              |                     | 21.00         |              |                     |               |              |  |
|                     | 11      | 2462            |                     | 18.00         |              |                     | 19.00         |              |                     |               |              |  |
| 802.11n-HT20 MCS0   | 1       | 2412            | Not Required        | 19.00         | Not Required | Not Required        | 19.25         | Not Required | Not Required        |               | 22.00        |  |
|                     | 6       | 2437            |                     | 21.00         |              |                     | 21.00         |              |                     |               | 24.00        |  |
|                     | 11      | 2462            |                     | 18.00         |              |                     | 19.00         |              |                     |               | 21.00        |  |
| 802.11n-HT40 MCS0   | 3       | 2422            | Not Required        | 16.75         | Not Required | Not Required        | 17.75         | Not Required | Not Required        |               | 19.75        |  |
|                     | 6       | 2437            |                     | 18.00         |              |                     | 18.25         |              |                     |               | 21.00        |  |
|                     | 9       | 2452            |                     | 17.25         |              |                     | 17.50         |              |                     |               | 20.25        |  |
| 802.11ac-VHT20 MCS0 | 1       | 2412            | Not Required        | 19.00         | Not Required | Not Required        | 19.25         | Not Required | Not Required        |               | 22.00        |  |
|                     | 6       | 2437            |                     | 21.00         |              |                     | 21.00         |              |                     |               | 24.00        |  |
|                     | 11      | 2462            |                     | 18.00         |              |                     | 19.00         |              |                     |               | 21.00        |  |
| 802.11ac-VHT40 MCS0 | 3       | 2422            | Not Required        | 16.75         | Not Required | Not Required        | 17.75         | Not Required | Not Required        |               | 19.75        |  |
|                     | 6       | 2437            |                     | 18.00         |              |                     | 18.25         |              |                     |               | 21.00        |  |
|                     | 9       | 2452            |                     | 17.25         |              |                     | 17.50         |              |                     |               | 20.25        |  |
| 802.11ax-HE20 MCS0  | 1       | 2412            | Not Required        | 19.00         | Not Required | Not Required        | 19.25         | Not Required | Not Required        |               | 22.00        |  |
|                     | 6       | 2437            |                     | 21.00         |              |                     | 21.00         |              |                     |               | 24.00        |  |
|                     | 11      | 2462            |                     | 18.00         |              |                     | 19.00         |              |                     |               | 21.00        |  |
| 802.11ax-HE40 MCS0  | 3       | 2422            | Not Required        | 16.75         | Not Required | Not Required        | 17.75         | Not Required | Not Required        |               | 19.75        |  |
|                     | 6       | 2437            |                     | 18.00         |              |                     | 18.25         |              |                     |               | 21.00        |  |
|                     | 9       | 2452            |                     | 17.25         |              |                     | 17.50         |              |                     |               | 20.25        |  |



<5GHz WLAN>

| 5.2GHz WLAN |                     |                 |                     | Ant 1         |              |                     | Ant 2         |              |                     | Ant 1+2       |              |       |       |       |       |
|-------------|---------------------|-----------------|---------------------|---------------|--------------|---------------------|---------------|--------------|---------------------|---------------|--------------|-------|-------|-------|-------|
| Mode        | Channel             | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % | Average power (dBm) | Tune-Up Limit | Duty Cycle % | Average power (dBm) | Tune-Up Limit | Duty Cycle % |       |       |       |       |
| 5.2GHz WLAN | 802.11a 6Mbps       | 36              | 5180                | Not Required  | Not Required | Not Required        | Not Required  | Not Required | Not Required        | Not Required  | Not Required |       |       |       |       |
|             |                     | 40              | 5200                |               |              |                     |               |              |                     |               |              | 19.75 | 21.00 | 19.50 | 21.00 |
|             |                     | 44              | 5220                |               |              |                     |               |              |                     |               |              | 21.00 | 21.00 | 21.00 | 21.00 |
|             |                     | 48              | 5240                |               |              |                     |               |              |                     |               |              | 21.00 | 21.00 | 21.00 | 21.00 |
|             | 802.11n-HT20 MCS0   | 36              | 5180                |               |              |                     |               |              |                     |               |              | 19.75 | 19.50 | 22.50 |       |
|             |                     | 40              | 5200                |               |              |                     |               |              |                     |               |              | 21.00 | 21.00 | 24.00 |       |
|             |                     | 44              | 5220                |               |              |                     |               |              |                     |               |              | 21.00 | 21.00 | 24.00 |       |
|             |                     | 48              | 5240                |               |              |                     |               |              |                     |               |              | 21.00 | 21.00 | 24.00 |       |
|             | 802.11n-HT40 MCS0   | 38              | 5190                |               |              |                     |               |              |                     |               |              | 16.75 | 16.50 | 19.50 |       |
|             |                     | 46              | 5230                |               |              |                     |               |              |                     |               |              | 20.25 | 20.00 | 23.00 |       |
|             | 802.11ac-VHT20 MCS0 | 36              | 5180                |               |              |                     |               |              |                     |               |              | 19.75 | 19.50 | 22.50 |       |
|             |                     | 40              | 5200                |               |              |                     |               |              |                     |               |              | 21.00 | 21.00 | 24.00 |       |
|             |                     | 44              | 5220                |               |              |                     |               |              |                     |               |              | 21.00 | 21.00 | 24.00 |       |
|             |                     | 48              | 5240                |               |              |                     |               |              |                     |               |              | 21.00 | 21.00 | 24.00 |       |
|             | 802.11ac-VHT40 MCS0 | 38              | 5190                |               |              |                     |               |              |                     |               |              | 16.75 | 16.50 | 19.50 |       |
|             |                     | 46              | 5230                |               |              |                     |               |              |                     |               |              | 20.25 | 20.00 | 23.00 |       |
|             | 802.11ac-VHT80 MCS0 | 42              | 5210                |               |              |                     |               |              |                     |               |              | 18.50 | 17.25 | 20.25 |       |
|             | 802.11ax-HE20 MCS0  | 36              | 5180                |               |              |                     |               |              |                     |               |              | 19.75 | 19.50 | 22.50 |       |
|             |                     | 40              | 5200                |               |              |                     |               |              |                     |               |              | 21.00 | 21.00 | 24.00 |       |
|             |                     | 44              | 5220                |               |              |                     |               |              |                     |               |              | 21.00 | 21.00 | 24.00 |       |
|             |                     | 48              | 5240                |               |              |                     |               |              |                     |               |              | 21.00 | 21.00 | 24.00 |       |
|             | 802.11ax-HE40 MCS0  | 38              | 5190                |               |              |                     |               |              |                     |               |              | 16.75 | 16.50 | 19.50 |       |
|             |                     | 46              | 5230                |               |              |                     |               |              |                     |               |              | 20.25 | 20.00 | 23.00 |       |
|             | 802.11ax-HE80 MCS0  | 42              | 5210                |               |              |                     |               |              |                     |               |              | 18.50 | 17.25 | 20.25 |       |



| 5.3GHz WLAN          |               |         |                 | Ant 1               |               |              | Ant 2               |               |              | Ant 1+2             |               |              |
|----------------------|---------------|---------|-----------------|---------------------|---------------|--------------|---------------------|---------------|--------------|---------------------|---------------|--------------|
| 5.3GHz WLAN          | Mode          | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % | Average power (dBm) | Tune-Up Limit | Duty Cycle % | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|                      | 802.11a 6Mbps |         | 52              | 5260                | 20.90         | 21.00        | 97.80               | 20.90         | 21.00        | 97.80               |               |              |
| 56                   |               |         | 5280            | 20.90               | 21.00         | 20.80        |                     | 21.00         |              |                     |               |              |
| 60                   |               |         | 5300            | 20.90               | 21.00         | 20.90        |                     | 21.00         |              |                     |               |              |
| 64                   |               |         | 5320            | 19.80               | 20.00         | 19.80        |                     | 20.00         |              |                     |               |              |
| 802.11n-HT20 MCS0    |               | 52      | 5260            | Not Required        | 21.00         | Not Required | Not Required        | 21.00         | Not Required | Not Required        | 24.00         | Not Required |
|                      |               | 56      | 5280            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |
|                      |               | 60      | 5300            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |
|                      |               | 64      | 5320            |                     | 20.25         |              |                     | 20.00         |              |                     | 23.00         |              |
| 802.11n-HT40 MCS0    |               | 54      | 5270            |                     | 20.00         |              |                     | 20.25         |              |                     | 23.00         |              |
|                      |               | 62      | 5310            |                     | 16.75         |              |                     | 17.00         |              |                     | 19.75         |              |
| 802.11ac-VHT20 MCS0  |               | 52      | 5260            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |
|                      |               | 56      | 5280            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |
|                      |               | 60      | 5300            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |
|                      |               | 64      | 5320            |                     | 20.25         |              |                     | 20.00         |              |                     | 23.00         |              |
| 802.11ac-VHT40 MCS0  |               | 54      | 5270            |                     | 20.00         |              |                     | 20.25         |              |                     | 23.00         |              |
|                      |               | 62      | 5310            |                     | 16.75         |              |                     | 17.00         |              |                     | 19.75         |              |
| 802.11ac-VHT80 MCS0  |               | 58      | 5290            |                     | 16.75         |              |                     | 16.50         |              |                     | 19.50         |              |
| 802.11ac-VHT160 MCS0 |               | 50      | 5250            |                     | 14.00         |              |                     | 15.00         |              |                     | 17.00         |              |
| 802.11ax-HE20 MCS0   |               | 52      | 5260            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |
|                      |               | 56      | 5280            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |
|                      |               | 60      | 5300            | 21.00               | 21.00         | 24.00        |                     |               |              |                     |               |              |
|                      |               | 64      | 5320            | 20.25               | 20.00         | 23.00        |                     |               |              |                     |               |              |
| 802.11ax-HE40 MCS0   |               | 54      | 5270            | 20.00               | 20.25         | 23.00        |                     |               |              |                     |               |              |
|                      |               | 62      | 5310            | 16.75               | 17.00         | 19.75        |                     |               |              |                     |               |              |
| 802.11ax-HE80 MCS0   |               | 58      | 5290            | 16.75               | 16.50         | 19.50        |                     |               |              |                     |               |              |
| 802.11ax-HE160 MCS0  |               | 50      | 5250            | 14.00               | 15.00         | 17.00        |                     |               |              |                     |               |              |



| 5.5GHz WLAN         |                      |                 |                     | Ant 1         |              |                     | Ant 2         |              |                     | Ant 1+2       |              |       |       |
|---------------------|----------------------|-----------------|---------------------|---------------|--------------|---------------------|---------------|--------------|---------------------|---------------|--------------|-------|-------|
| Mode                | Channel              | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % | Average power (dBm) | Tune-Up Limit | Duty Cycle % | Average power (dBm) | Tune-Up Limit | Duty Cycle % |       |       |
| 802.11a 6Mbps       | 100                  | 5500            | Not Required        | 20.00         | Not Required | Not Required        | 20.25         | Not Required | Not Required        | 23.00         | Not Required |       |       |
|                     | 116                  | 5580            |                     | 21.00         |              |                     | 21.00         |              |                     |               |              |       |       |
|                     | 124                  | 5620            |                     | 21.00         |              |                     | 21.00         |              |                     |               |              |       |       |
|                     | 132                  | 5660            |                     | 21.00         |              |                     | 21.00         |              |                     |               |              |       |       |
|                     | 144                  | 5720            |                     | 21.00         |              |                     | 21.00         |              |                     |               |              |       |       |
| 802.11n-HT20 MCS0   | 100                  | 5500            | Not Required        | 20.00         | Not Required | Not Required        | 20.25         | Not Required | Not Required        | 23.00         | Not Required |       |       |
|                     | 116                  | 5580            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
|                     | 124                  | 5620            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
|                     | 132                  | 5660            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
|                     | 144                  | 5720            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
| 802.11n-HT40 MCS0   | 102                  | 5510            | Not Required        | 17.00         | Not Required | Not Required        | 18.25         | Not Required | Not Required        | 20.00         | Not Required |       |       |
|                     | 110                  | 5550            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
|                     | 126                  | 5630            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
|                     | 134                  | 5670            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
| 802.11ac-VHT20 MCS0 | 100                  | 5500            | Not Required        | 20.00         | Not Required | Not Required        | 20.25         | Not Required | Not Required        | 23.00         | Not Required |       |       |
|                     | 116                  | 5580            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
|                     | 124                  | 5620            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
|                     | 132                  | 5660            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
| 802.11ac-VHT40 MCS0 | 102                  | 5510            | Not Required        | 17.00         | Not Required | Not Required        | 18.25         | Not Required | Not Required        | 20.00         | Not Required |       |       |
|                     | 110                  | 5550            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
|                     | 126                  | 5630            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
|                     | 134                  | 5670            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
| 802.11ac-VHT80 MCS0 | 106                  | 5530            | Not Required        | 18.75         | 98.80        | Not Required        | 18.50         | 98.80        | Not Required        | 21.75         | Not Required |       |       |
|                     | 122                  | 5610            |                     | 20.30         |              |                     | 21.00         |              |                     | 20.40         |              | 21.00 | 24.00 |
|                     | 138                  | 5690            |                     | 20.80         |              |                     | 21.00         |              |                     | 20.80         |              | 21.00 | 24.00 |
|                     | 802.11ac-VHT160 MCS0 | 114             |                     | 5570          |              |                     | 15.50         |              |                     | 16.75         |              | 18.50 |       |
| 802.11ax-HE20 MCS0  | 100                  | 5500            | Not Required        | 20.00         | Not Required | Not Required        | 20.25         | Not Required | Not Required        | 23.00         | Not Required |       |       |
|                     | 116                  | 5580            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
|                     | 124                  | 5620            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
|                     | 132                  | 5660            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
|                     | 144                  | 5720            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
| 802.11ax-HE40 MCS0  | 102                  | 5510            | Not Required        | 17.00         | Not Required | Not Required        | 18.25         | Not Required | Not Required        | 20.00         | Not Required |       |       |
|                     | 110                  | 5550            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
|                     | 126                  | 5630            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
|                     | 134                  | 5670            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
| 802.11ax-HE80 MCS0  | 106                  | 5530            | Not Required        | 18.25         | Not Required | Not Required        | 18.75         | Not Required | Not Required        | 21.25         | Not Required |       |       |
|                     | 122                  | 5610            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
|                     | 138                  | 5690            |                     | 21.00         |              |                     | 21.00         |              |                     | 24.00         |              |       |       |
| 802.11ax-HE160 MCS0 | 114                  | 5570            | 15.50               | 16.75         | 18.50        |                     |               |              |                     |               |              |       |       |



| 5.8GHz WLAN         |             |               |                 | Ant 1               |               |              | Ant 2               |               |              | Ant 1+2             |               |              |              |
|---------------------|-------------|---------------|-----------------|---------------------|---------------|--------------|---------------------|---------------|--------------|---------------------|---------------|--------------|--------------|
| 5.8GHz WLAN         | Mode        | Channel       | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % | Average power (dBm) | Tune-Up Limit | Duty Cycle % | Average power (dBm) | Tune-Up Limit | Duty Cycle % |              |
|                     | 5.8GHz WLAN | 802.11a 6Mbps | 149             | 5745                | Not Required  | 21.00        | Not Required        | Not Required  | 21.00        | Not Required        | Not Required  | Not Required | Not Required |
| 157                 |             |               | 5785            | 21.00               |               | 21.00        |                     |               |              |                     |               |              |              |
| 165                 |             |               | 5825            | 21.00               |               | 21.00        |                     |               |              |                     |               |              |              |
| 802.11n-HT20 MCS0   |             | 149           | 5745            | Not Required        | 21.00         | Not Required | Not Required        | 21.00         | Not Required | Not Required        | Not Required  | 24.00        | Not Required |
|                     |             | 157           | 5785            |                     | 21.00         |              |                     | 21.00         |              |                     |               |              |              |
|                     |             | 165           | 5825            |                     | 21.00         |              |                     | 21.00         |              |                     |               |              |              |
| 802.11n-HT40 MCS0   |             | 151           | 5755            | 20.80               | 21.00         | 98.80        | 20.90               | 21.00         | 98.80        | Not Required        | Not Required  | 24.00        | Not Required |
|                     |             | 159           | 5795            | 20.80               | 21.00         |              |                     | 21.00         |              |                     |               | 21.00        |              |
| 802.11ac-VHT20 MCS0 |             | 149           | 5745            | Not Required        | 21.00         | Not Required | Not Required        | 21.00         | Not Required | Not Required        | Not Required  | 24.00        | Not Required |
|                     |             | 157           | 5785            |                     | 21.00         |              |                     | 21.00         |              |                     |               |              |              |
|                     |             | 165           | 5825            |                     | 21.00         |              |                     | 21.00         |              |                     |               |              |              |
| 802.11ac-VHT40 MCS0 |             | 151           | 5755            | Not Required        | 21.00         | Not Required | Not Required        | 21.00         | Not Required | Not Required        | Not Required  | 24.00        | Not Required |
|                     |             | 159           | 5795            |                     | 21.00         |              |                     | 21.00         |              |                     |               |              |              |
| 802.11ac-VHT80 MCS0 |             | 155           | 5775            | Not Required        | 20.75         | Not Required | Not Required        | 20.50         | Not Required | Not Required        | Not Required  | 23.50        | Not Required |
| 802.11ax-HE20 MCS0  |             | 149           | 5745            | Not Required        | 21.00         | Not Required | Not Required        | 21.00         | Not Required | Not Required        | Not Required  | 24.00        | Not Required |
|                     |             | 157           | 5785            |                     | 21.00         |              |                     | 21.00         |              |                     |               |              |              |
|                     |             | 165           | 5825            |                     | 21.00         |              |                     | 21.00         |              |                     |               |              |              |
| 802.11ax-HE40 MCS0  |             | 151           | 5755            | Not Required        | 21.00         | Not Required | Not Required        | 21.00         | Not Required | Not Required        | Not Required  | 24.00        | Not Required |
|                     | 159         | 5795          | 21.00           |                     | 21.00         |              |                     |               |              |                     |               |              |              |
| 802.11ax-HE80 MCS0  | 155         | 5775          | Not Required    | 20.75               | Not Required  | Not Required | 20.50               | Not Required  | Not Required | Not Required        | 23.50         | Not Required |              |



<6GHz WLAN>

| WiFi 6E              |         |                 |                     | Ant 1         |              |                     | Ant 2         |              |                     | Ant 1+2       |              |  |
|----------------------|---------|-----------------|---------------------|---------------|--------------|---------------------|---------------|--------------|---------------------|---------------|--------------|--|
| Mode                 | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % | Average power (dBm) | Tune-Up Limit | Duty Cycle % | Average power (dBm) | Tune-Up Limit | Duty Cycle % |  |
| 802.11a 6Mbps        | 1       | 5955            |                     | 13.50         |              |                     | 13.50         |              |                     |               |              |  |
|                      | 57      | 6235            |                     | 13.50         |              |                     | 13.50         |              |                     |               |              |  |
|                      | 113     | 6515            |                     | 13.50         |              |                     | 13.50         |              |                     |               |              |  |
|                      | 173     | 6815            |                     | 13.50         |              |                     | 13.50         |              |                     |               |              |  |
|                      | 233     | 7115            |                     | 13.50         |              |                     | 13.50         |              |                     |               |              |  |
| 802.11n-HT20 MCS0    | 1       | 5955            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 57      | 6235            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 113     | 6515            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 173     | 6815            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
| 802.11n-HT40 MCS0    | 3       | 5965            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 59      | 6245            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 107     | 6485            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 171     | 6805            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
| 802.11ac-VHT20 MCS0  | 1       | 5955            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 57      | 6235            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 113     | 6515            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 173     | 6815            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
| 802.11ac-VHT40 MCS0  | 3       | 5965            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 59      | 6245            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 107     | 6485            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 171     | 6805            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
| 802.11ac-VHT80 MCS0  | 7       | 5985            | Not Required        | 13.50         | Not Required | Not Required        | 13.50         | Not Required |                     | 16.50         |              |  |
|                      | 71      | 6305            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 119     | 6545            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 167     | 6785            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
| 802.11ac-VHT160 MCS0 | 15      | 6025            |                     | 13.50         |              |                     | 13.50         |              | Not Required        | 16.50         | Not Required |  |
|                      | 47      | 6185            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 111     | 6505            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 175     | 6825            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
| 802.11ax-HE20 MCS0   | 1       | 5955            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 57      | 6235            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 113     | 6515            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 173     | 6815            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
| 802.11ax-HE40 MCS0   | 3       | 5965            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 59      | 6245            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 107     | 6485            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 171     | 6805            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
| 802.11ax-HE80 MCS0   | 7       | 5985            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 71      | 6305            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 119     | 6545            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 167     | 6785            |                     | 13.50         |              |                     | 13.50         |              |                     | 16.50         |              |  |
| 802.11ax-HE160 MCS0  | 15      | 6025            | 13.30               | 13.50         | 97.70        |                     | 13.30         | 13.50        | 97.70               | 16.50         |              |  |
|                      | 47      | 6185            |                     | 13.40         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 111     | 6505            |                     | 13.40         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 175     | 6825            |                     | 13.30         |              |                     | 13.50         |              |                     | 16.50         |              |  |
|                      | 207     | 6985            | 13.30               | 13.50         |              | 13.40               | 13.50         |              | 16.50               |               |              |  |



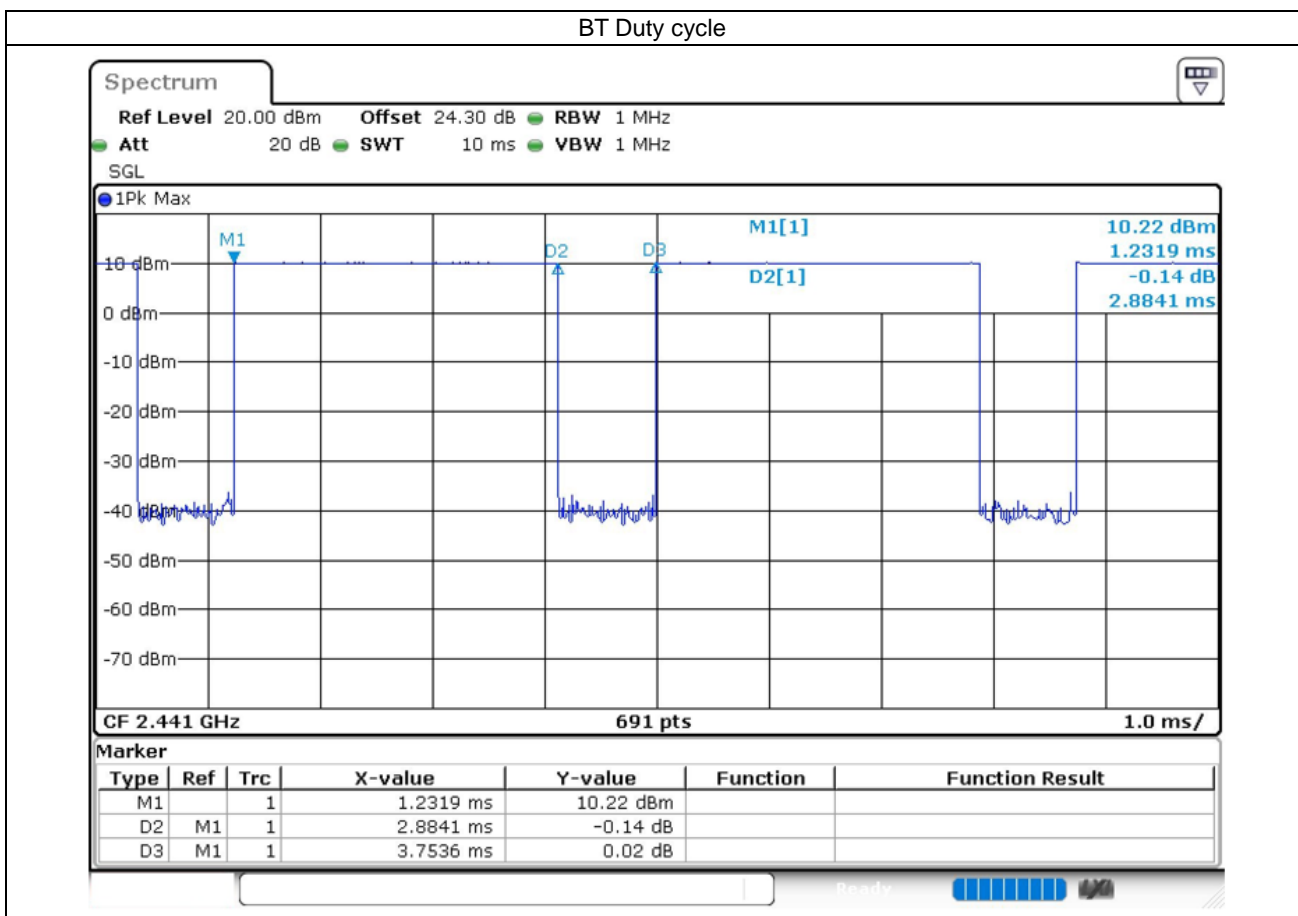
<2.4GHz Bluetooth>

| Mode          | Channel | Frequency (MHz) | Average power (dBm) |              |              |
|---------------|---------|-----------------|---------------------|--------------|--------------|
|               |         |                 | 1Mbps               | 2Mbps        | 3Mbps        |
| BR / EDR      | CH 00   | 2402            | 10.00               | Not Required | Not Required |
|               | CH 39   | 2441            | 10.20               |              |              |
|               | CH 78   | 2480            | 10.70               |              |              |
| Tune-up Limit |         |                 | 11.5                | 11           | 11           |

| Mode          | BLE | Average power (dBm) |       |
|---------------|-----|---------------------|-------|
|               |     | 1Mbps               | 2Mbps |
| Tune-up Limit |     | 10                  | 10    |

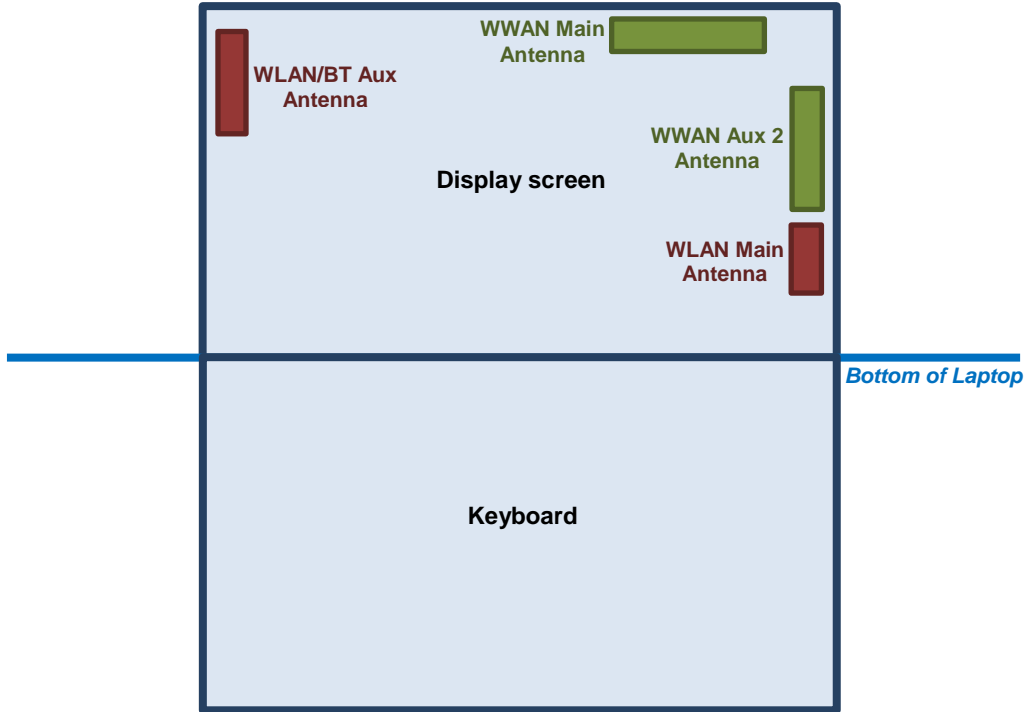
General Note:

- For 2.4GHz Bluetooth SAR testing was selected 1Mbps due to its highest average power and duty cycle is 76.83% considered in SAR testing, and the duty cycle would be scaled to theoretical 83.3% in reported SAR calculation.





**13. Antenna Location**



**Front View**

The separation distance for antenna to edge:

| Antenna             | To Bottom of Laptop (mm) |
|---------------------|--------------------------|
| WWAN Main Antenna   | 231.5                    |
| WWAN Aux 2 Antenna  | 102.5                    |
| WLAN Main Antenna   | 61.9                     |
| WLAN/BT Aux Antenna | 186.4                    |



## 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 WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)\* Duty Cycle scaling factor \* Tune-up scaling factor
  - e. 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

### 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  $>$  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  $>$  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 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 4/5/17/38/42 SAR test was covered by Band 66/26/12/41/48; 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. Referencing the procedure in KDB 941225, the test procedures are outlined as below:
  - a. To start SAR test for the largest channel bandwidth 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. Also do SAR test for 50% RB allocation for PI/2 BPSK SAR testing using 1RB PI/2 BPSK allocation procedure
  - b. For PI/2 BPSK with 100% RB allocation, SAR test 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.
  - c. For higher modulation QPSK/16QAM/64QAM/256QAM, according to tune-up document the power level is 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.
  - d. Smaller bandwidth output power for each RB allocation configuration for this device 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  $\leq 1.45$  W/kg, smaller bandwidth SAR testing is not required for this device
  - e. For 5G FR1 n5/n12/n41, the maximum channel bandwidth does not support three non-overlapping channels in the frequency band, the middle channel of the group of overlapping channels were selected for testing.
  - f. 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.

**WLAN Note:**

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is  $\leq 1.2$  W/kg.
2. Per KDB 248227 D01v02r02, WLAN5.2GHz SAR testing is not required when the WLAN5.3GHz band highest reported SAR for a test configuration is  $\leq 1.2$  W/kg, SAR is not required for WLAN5.2GHz band.
3. When the reported SAR of the test position is  $> 0.4$  W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is  $\leq 0.8$  W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is  $> 0.8$  W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is  $\leq 1.2$  W/kg or all required channels are tested.
5. For WLAN SAR testing was performed on single antenna RF power in SISO mode is larger or equal to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode.
6. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is  $< 1.6$ W/kg and SAR peak to location ratio  $\leq 0.04$ , no additional SAR measurements for MIMO.
7. During SAR testing the WLAN transmission was verified using a spectrum analyzer.



14.1 WWAN SAR

<WCDMA SAR>

| Plot No. | Band          | Mode         | Test Position    | Gap (mm) | 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) |
|----------|---------------|--------------|------------------|----------|------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 01       | WCDMA II_Main | RMC 12.2Kbps | Bottom of Laptop | 0mm      | 9400 | 1880        | 23.47               | 24.50               | 1.268                  | 0                | < 0.001                | < 0.001                |
| 02       | WCDMA IV_Main | RMC 12.2Kbps | Bottom of Laptop | 0mm      | 1513 | 1752.6      | 23.61               | 24.50               | 1.227                  | 0                | < 0.001                | < 0.001                |
| 03       | WCDMA V_Main  | RMC 12.2Kbps | Bottom of Laptop | 0mm      | 4182 | 836.4       | 23.88               | 24.50               | 1.153                  | 0                | < 0.001                | < 0.001                |

<FDD LTE SAR>

| Plot No.          | Band              | BW (MHz) | Modulation | RB Size | RB offset        | Test Position    | Gap (mm) | 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) |
|-------------------|-------------------|----------|------------|---------|------------------|------------------|----------|---------------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 04                | LTE Band 2_Aux 2  | 20M      | QPSK       | 1       | 0                | Bottom of Laptop | 0mm      | 19100         | 1900        | 22.88               | 24.00               | 1.294                  | 0                | < 0.001                | < 0.001                |
|                   | LTE Band 2_Aux 2  | 20M      | QPSK       | 50      | 0                | Bottom of Laptop | 0mm      | 19100         | 1900        | 22.06               | 23.00               | 1.242                  | 0                | < 0.001                | < 0.001                |
| 05                | LTE Band 7_Main   | 20M      | QPSK       | 1       | 0                | Bottom of Laptop | 0mm      | 21100         | 2535        | 23.05               | 24.00               | 1.245                  | 0                | < 0.001                | < 0.001                |
|                   | LTE Band 7_Main   | 20M      | QPSK       | 50      | 0                | Bottom of Laptop | 0mm      | 21100         | 2535        | 22.17               | 23.00               | 1.211                  | 0                | < 0.001                | < 0.001                |
|                   | LTE Band 7C_Main  | 20M      | QPSK       | 1       | 0                | Bottom of Laptop | 0mm      | 21100+20902   | 2535        | 23.01               | 24.00               | 1.256                  | 0                | < 0.001                | < 0.001                |
|                   | LTE Band 7_Aux 2  | 20M      | QPSK       | 1       | 0                | Bottom of Laptop | 0mm      | 21100         | 2535        | 23.05               | 24.00               | 1.245                  | 0                | < 0.001                | < 0.001                |
| 06                | LTE Band 12_Main  | 10M      | QPSK       | 1       | 0                | Bottom of Laptop | 0mm      | 23095         | 707.5       | 23.22               | 24.50               | 1.343                  | 0                | < 0.001                | < 0.001                |
|                   | LTE Band 12_Main  | 10M      | QPSK       | 25      | 0                | Bottom of Laptop | 0mm      | 23095         | 707.5       | 22.34               | 23.50               | 1.306                  | 0                | < 0.001                | < 0.001                |
| 07                | LTE Band 13_Main  | 10M      | QPSK       | 1       | 0                | Bottom of Laptop | 0mm      | 23230         | 782         | 23.27               | 24.50               | 1.327                  | 0                | < 0.001                | < 0.001                |
|                   | LTE Band 13_Main  | 10M      | QPSK       | 25      | 0                | Bottom of Laptop | 0mm      | 23230         | 782         | 22.35               | 23.50               | 1.303                  | 0                | < 0.001                | < 0.001                |
| 08                | LTE Band 14_Main  | 10M      | QPSK       | 1       | 0                | Bottom of Laptop | 0mm      | 23330         | 793         | 22.91               | 24.50               | 1.442                  | 0                | < 0.001                | < 0.001                |
|                   | LTE Band 14_Main  | 10M      | QPSK       | 25      | 0                | Bottom of Laptop | 0mm      | 23330         | 793         | 22.11               | 23.50               | 1.377                  | 0                | < 0.001                | < 0.001                |
| 09                | LTE Band 25_Main  | 20M      | QPSK       | 1       | 0                | Bottom of Laptop | 0mm      | 26590         | 1905        | 22.91               | 24.00               | 1.285                  | 0                | < 0.001                | < 0.001                |
|                   | LTE Band 25_Main  | 20M      | QPSK       | 50      | 0                | Bottom of Laptop | 0mm      | 26590         | 1905        | 22.09               | 23.00               | 1.233                  | 0                | < 0.001                | < 0.001                |
| 10                | LTE Band 26_Main  | 15M      | QPSK       | 1       | 0                | Bottom of Laptop | 0mm      | 26865         | 831.5       | 23.15               | 24.50               | 1.365                  | 0                | < 0.001                | < 0.001                |
|                   | LTE Band 26_Main  | 15M      | QPSK       | 36      | 0                | Bottom of Laptop | 0mm      | 26865         | 831.5       | 22.47               | 23.50               | 1.268                  | 0                | < 0.001                | < 0.001                |
|                   | LTE Band 5B_Main  | 10M      | QPSK       | 1       | 0                | Bottom of Laptop | 0mm      | 20575+20476   | 841.5       | 23.17               | 24.50               | 1.358                  | 0.17             | < 0.001                | < 0.001                |
| 11                | LTE Band 30_Main  | 10M      | QPSK       | 1       | 0                | Bottom of Laptop | 0mm      | 27710         | 2310        | 21.68               | 23.00               | 1.355                  | 0                | < 0.001                | < 0.001                |
|                   | LTE Band 30_Main  | 10M      | QPSK       | 25      | 0                | Bottom of Laptop | 0mm      | 27710         | 2310        | 20.71               | 22.00               | 1.346                  | 0                | < 0.001                | < 0.001                |
| 12                | LTE Band 66_Main  | 20M      | QPSK       | 1       | 0                | Bottom of Laptop | 0mm      | 132072        | 1720        | 23.20               | 24.00               | 1.202                  | 0                | < 0.001                | < 0.001                |
|                   | LTE Band 66_Main  | 20M      | QPSK       | 50      | 0                | Bottom of Laptop | 0mm      | 132072        | 1720        | 22.19               | 23.00               | 1.205                  | 0                | < 0.001                | < 0.001                |
|                   | LTE Band 66B_Main | 20M      | QPSK       | 1       | 0                | Bottom of Laptop | 0mm      | 132047+132140 | 1717.5      | 23.69               | 24.00               | 1.074                  | 0                | < 0.001                | < 0.001                |
|                   | LTE Band 66C_Main | 20M      | QPSK       | 1       | 0                | Bottom of Laptop | 0mm      | 132072+132270 | 1720        | 23.13               | 24.00               | 1.222                  | 0                | < 0.001                | < 0.001                |
|                   | LTE Band 66_Aux 2 | 20M      | QPSK       | 1       | 0                | Bottom of Laptop | 0mm      | 132072        | 1720        | 23.20               | 24.00               | 1.202                  | 0                | < 0.001                | < 0.001                |
| LTE Band 66_Aux 2 | 20M               | QPSK     | 50         | 0       | Bottom of Laptop | 0mm              | 132072   | 1720          | 22.19       | 23.00               | 1.205               | 0                      | < 0.001          | < 0.001                |                        |

<TDD LTE SAR>

| Plot No. | Band                  | BW (MHz) | Modulation | RB Size | RB offset | Test Position    | Gap (mm) | 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) |
|----------|-----------------------|----------|------------|---------|-----------|------------------|----------|-------------|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
| 13       | LTE Band 41_Main      | 20M      | QPSK       | 1       | 0         | Bottom of Laptop | 0mm      | 40185       | 2549.5      | 23.07               | 24.00               | 1.239                  | 62.9         | 1.006                     | 0                | < 0.001                | < 0.001                |
|          | LTE Band 41_Main      | 20M      | QPSK       | 50      | 0         | Bottom of Laptop | 0mm      | 40185       | 2549.5      | 22.34               | 23.00               | 1.164                  | 62.9         | 1.006                     | 0                | < 0.001                | < 0.001                |
|          | LTE Band 41_HPUE_Main | 20M      | QPSK       | 1       | 0         | Bottom of Laptop | 0mm      | 40185       | 2549.5      | 25.69               | 27.00               | 1.352                  | 42.9         | 1.009                     | 0                | < 0.001                | < 0.001                |
|          | LTE Band 41C_Main     | 20M      | QPSK       | 1       | 0         | Bottom of Laptop | 0mm      | 40185+39987 | 2549.5      | 23.05               | 24.00               | 1.245                  | 62.9         | 1.006                     | 0                | < 0.001                | < 0.001                |
| 14       | LTE Band 48_Aux 2     | 20M      | QPSK       | 1       | 0         | Bottom of Laptop | 0mm      | 55340       | 3560        | 20.72               | 22.00               | 1.343                  | 62.9         | 1.006                     | 0                | < 0.001                | < 0.001                |
|          | LTE Band 48_Aux 2     | 20M      | QPSK       | 50      | 0         | Bottom of Laptop | 0mm      | 55340       | 3560        | 19.79               | 21.00               | 1.321                  | 62.9         | 1.006                     | 0                | < 0.001                | < 0.001                |
|          | LTE Band 48C_Aux 2    | 20M      | QPSK       | 1       | 0         | Bottom of Laptop | 0mm      | 55340+55538 | 3560        | 20.68               | 22.00               | 1.355                  | 62.9         | 1.006                     | 0                | < 0.001                | < 0.001                |

**<5G NR SAR>**

| Plot No. | Band          | BW (MHz) | Modulation | RB Size | RB offset | Test Position    | Gap (mm) | 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) |
|----------|---------------|----------|------------|---------|-----------|------------------|----------|--------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 15       | FR1 n2_Main   | 20M      | BPSK       | 1       | 1         | Bottom of Laptop | 0mm      | 376000 | 1880        | 23.28               | 24.00               | 1.180                  | 0                | < 0.001                | < 0.001                |
|          | FR1 n2_Main   | 20M      | BPSK       | 50      | 0         | Bottom of Laptop | 0mm      | 376000 | 1880        | 23.05               | 23.50               | 1.109                  | 0                | < 0.001                | < 0.001                |
|          | FR1 n2_Aux 2  | 20M      | BPSK       | 1       | 1         | Bottom of Laptop | 0mm      | 376000 | 1880        | 23.32               | 24.00               | 1.169                  | 0                | < 0.001                | < 0.001                |
|          | FR1 n2_Aux 2  | 20M      | BPSK       | 50      | 0         | Bottom of Laptop | 0mm      | 376000 | 1880        | 23.11               | 23.50               | 1.094                  | 0                | < 0.001                | < 0.001                |
| 16       | FR1 n5_Main   | 20M      | BPSK       | 1       | 1         | Bottom of Laptop | 0mm      | 167300 | 836.5       | 23.14               | 24.00               | 1.219                  | 0                | < 0.001                | < 0.001                |
|          | FR1 n5_Main   | 20M      | BPSK       | 50      | 0         | Bottom of Laptop | 0mm      | 167300 | 836.5       | 23.00               | 23.50               | 1.122                  | 0                | < 0.001                | < 0.001                |
| 17       | FR1 n7_Aux 2  | 20M      | BPSK       | 1       | 1         | Bottom of Laptop | 0mm      | 507000 | 2535        | 22.65               | 24.00               | 1.365                  | 0                | < 0.001                | < 0.001                |
|          | FR1 n7_Aux 2  | 20M      | BPSK       | 50      | 0         | Bottom of Laptop | 0mm      | 507000 | 2535        | 22.61               | 23.50               | 1.227                  | 0                | < 0.001                | < 0.001                |
| 18       | FR1 n12_Main  | 15M      | BPSK       | 1       | 1         | Bottom of Laptop | 0mm      | 141500 | 707.5       | 23.12               | 24.00               | 1.225                  | 0                | < 0.001                | < 0.001                |
|          | FR1 n12_Main  | 15M      | BPSK       | 36      | 0         | Bottom of Laptop | 0mm      | 141500 | 707.5       | 22.91               | 23.50               | 1.146                  | 0                | < 0.001                | < 0.001                |
| 19       | FR1 n41_Aux 2 | 100M     | BPSK       | 1       | 1         | Bottom of Laptop | 0mm      | 518598 | 2592.99     | 23.17               | 24.00               | 1.211                  | 0                | < 0.001                | < 0.001                |
|          | FR1 n41_Aux 2 | 100M     | BPSK       | 135     | 0         | Bottom of Laptop | 0mm      | 518598 | 2592.99     | 22.85               | 23.50               | 1.161                  | 0                | < 0.001                | < 0.001                |
| 20       | FR1 n66_Main  | 20M      | BPSK       | 1       | 1         | Bottom of Laptop | 0mm      | 349000 | 1745        | 23.17               | 24.00               | 1.211                  | 0                | < 0.001                | < 0.001                |
|          | FR1 n66_Main  | 20M      | BPSK       | 50      | 0         | Bottom of Laptop | 0mm      | 349000 | 1745        | 23.02               | 23.50               | 1.117                  | 0                | < 0.001                | < 0.001                |
|          | FR1 n66_Aux 2 | 20M      | BPSK       | 1       | 1         | Bottom of Laptop | 0mm      | 354000 | 1770        | 22.80               | 24.00               | 1.318                  | 0                | < 0.001                | < 0.001                |
|          | FR1 n66_Aux 2 | 20M      | BPSK       | 50      | 0         | Bottom of Laptop | 0mm      | 354000 | 1770        | 22.70               | 23.50               | 1.202                  | 0                | < 0.001                | < 0.001                |

**14.2 WLAN/BT SAR**

**<WLAN SAR>**

| Plot No. | Band       | Mode                | Test Position    | Gap (mm) | Antenna | 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) |
|----------|------------|---------------------|------------------|----------|---------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
|          | WLAN2.4GHz | 802.11b 1Mbps       | Bottom of Laptop | 0mm      | Main    | 6   | 2437        | 21.30               | 21.50               | 1.047                  | 99.5         | 1.005                     | 0                | < 0.001                | < 0.001                |
| 21       | WLAN2.4GHz | 802.11b 1Mbps       | Bottom of Laptop | 0mm      | Aux     | 6   | 2437        | 21.30               | 21.50               | 1.047                  | 99.5         | 1.005                     | 0                | < 0.001                | < 0.001                |
| 22       | WLAN5GHz   | 802.11a 6Mbps       | Bottom of Laptop | 0mm      | Main    | 60  | 5300        | 20.90               | 21.00               | 1.023                  | 97.8         | 1.022                     | 0                | < 0.001                | < 0.001                |
|          | WLAN5GHz   | 802.11a 6Mbps       | Bottom of Laptop | 0mm      | Aux     | 60  | 5300        | 20.90               | 21.00               | 1.023                  | 97.8         | 1.022                     | 0                | < 0.001                | < 0.001                |
|          | WLAN5GHz   | 802.11ac-VHT80 MCS0 | Bottom of Laptop | 0mm      | Main    | 138 | 5690        | 20.80               | 21.00               | 1.047                  | 98.8         | 1.012                     | 0                | < 0.001                | < 0.001                |
| 23       | WLAN5GHz   | 802.11ac-VHT80 MCS0 | Bottom of Laptop | 0mm      | Aux     | 138 | 5690        | 20.80               | 21.00               | 1.047                  | 98.8         | 1.012                     | 0                | < 0.001                | < 0.001                |
|          | WLAN5GHz   | 802.11n-HT40 MCS0   | Bottom of Laptop | 0mm      | Main    | 151 | 5755        | 20.80               | 21.00               | 1.047                  | 98.8         | 1.012                     | 0                | < 0.001                | < 0.001                |
| 24       | WLAN5GHz   | 802.11n-HT40 MCS0   | Bottom of Laptop | 0mm      | Aux     | 151 | 5755        | 20.90               | 21.00               | 1.023                  | 98.8         | 1.012                     | 0                | < 0.001                | < 0.001                |
|          | WLAN6GHz   | 802.11ax-HE160 MCS0 | Bottom of Laptop | 0mm      | Main    | 47  | 6185        | 13.40               | 13.50               | 1.023                  | 97.7         | 1.042                     | -0.12            | 0.001                  | 0.001                  |
| 25       | WLAN6GHz   | 802.11ax-HE160 MCS0 | Bottom of Laptop | 0mm      | Aux     | 47  | 6185        | 13.40               | 13.50               | 1.023                  | 97.7         | 1.042                     | 0.16             | 0.001                  | 0.001                  |

**<Bluetooth SAR>**

| Plot No. | Band      | Mode  | Test Position    | Gap (mm) | Antenna | 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) |
|----------|-----------|-------|------------------|----------|---------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
| 26       | Bluetooth | 1Mbps | Bottom of Laptop | 0mm      | Aux     | 78  | 2480        | 10.70               | 11.50               | 1.202                  | 76.83        | 1.084                     | 0                | < 0.001                | < 0.001                |



**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  
Use PC3 power level and SAR to estimated PC2 SAR linearly, and check if the deviation from the measured PC2 SAR is <10%

|                                     | LTE Band 41     | LTE Band 41     |
|-------------------------------------|-----------------|-----------------|
|                                     | (Power Class 3) | (Power Class 2) |
| Maximum Tune up Power (dBm)         | 24              | 27              |
| Reported 1g SAR (W/kg)              | < 0.001         | < 0.001         |
| Duty Cycle                          | 63.30%          | 43.30%          |
| Frame Averaged (mW)                 | 159.00          | 217.01          |
| Linearity SAR(W/kg)                 | -               | -               |
| % deviation from expected linearity | -               | -               |

**15. Simultaneous Transmission Analysis**

| NO. | Simultaneous Transmission Configurations  | Body |
|-----|---|------|
| 1.  | WWAN Main + WWAN Aux 2 + 2.4GHz WLAN Main + Bluetooth Aux + FR1                   | Yes  |
| 2.  | WWAN Main + WWAN Aux 2 + 2.4GHz WLAN Main + 2.4GHz WLAN Aux + FR1                 | Yes  |
| 3.  | WWAN Main + WWAN Aux 2 + 5/6GHz WLAN Main + 5/6GHz WLAN Aux + Bluetooth Aux + FR1 | Yes  |

**General Note:**

1. The Scaled SAR summation is calculated based on the same configuration and test position.
2. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
  - i) Scalar SAR summation < 1.6W/kg.
  - ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. 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.
  - iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
  - iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.

**15.1 Body Exposure Conditions**

| Exposure Position       | 1   | 2  | 3  | 4   | 5   | 6  | 7                                    | 1+2+3+7<br>Summed<br>1g SAR<br>(W/kg) | 1+2+3+4<br>Summed<br>1g SAR<br>(W/kg) | 1+2+5+6+7<br>Summed<br>1g SAR<br>(W/kg) |
|-------------------------|---|--|--|---|---|--|--------------------------------------|---------------------------------------|---------------------------------------|---|
|                         | Maximum<br>WWAN<br>Main<br>1g SAR<br>(W/kg) | Maximum<br>WWAN<br>Aux 2<br>1g SAR<br>(W/kg) | 2.4GHz<br>WLAN<br>Main<br>1g SAR<br>(W/kg) | 2.4GHz<br>WLAN<br>Aux<br>1g SAR<br>(W/kg) | 5G/6GHz<br>WLAN<br>Main<br>1g SAR<br>(W/kg) | 5G/6GHz<br>WLAN<br>Aux<br>1g SAR<br>(W/kg) | Bluetooth<br>Aux<br>1g SAR<br>(W/kg) |                                       |                                       |   |
| Bottom of Laptop at 0mm | 0.001                                       | 0.001  | 0.001                                      | 0.001                                     | 0.001                                       | 0.001                                      | 0.001                                | <b>0.004</b>                          | <b>0.004</b>                          | <b>0.005</b>                            |

**Test Engineer :** Mood Huang and Carter Jhuang



## **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
- [3] IEEE Std. 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", Sep 2013
- [4] SPEAG DASY System Handbook
- [5] FCC KDB 248227 D01 v02r02, "SAR Guidance for IEEE 802.11 (WiFi) Transmitters", Oct 2015.
- [6] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [7] FCC KDB 941225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [8] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
- [9] FCC KDB 941225 D05A v01r02, "Rel. 10 LTE SAR Test Guidance and KDB Inquiries", Oct 2015
- [10] FCC KDB 616217 D04 v01r02, "SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers", Oct 2015
- [11] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [12] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.