



FCC 47 CFR § 2.1093  
IEEE Std 1528-2013

**SAR EVALUATION REPORT**

**FOR**

**GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, ANT+, NFC and WPT**

**MODEL NUMBER: SM-G980F/DS, SM-G980F**

**FCC ID: A3LSMG980F**

**REPORT NUMBER: 4789247752-S1V2**

**ISSUE DATE: 1/10/2020**

*Prepared for*  
**SAMSUNG ELECTRONICS CO., LTD.**  
**129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI,**  
**GYEONGGI-DO, 16677, KOREA**

*Prepared by*  
**UL Korea, Ltd.**  
**26th floor, 152, Teheran-ro, Gangnam-gu Seoul, 06236, Korea**

**Suwon Test Site: UL Korea, Ltd. Suwon Laboratory**  
**218 Maeyeong-ro, Yeongtong-gu,**  
**Suwon-si, Gyeonggi-do, 16675, Korea**  
**TEL: (031) 337-9902**  
**FAX: (031) 213-5433**



**Testing Laboratory**

**TL-637**

**Revision History**

| Rev. | Date       | Revisions                               | Revised By  |
|------|------------|-----------------------------------------|-------------|
| V1   | 12/26/2019 | Initial Issue                           | --          |
| V2   | 1/10/2020  | Revised Duty cycle for Wi-Fi in Sec.6.2 | Sanghwa Lee |
|      |            |                                         |             |
|      |            |                                         |             |

## Table of Contents

|           |                                                                                 |           |
|-----------|---------------------------------------------------------------------------------|-----------|
| <b>1.</b> | <b>Attestation of Test Results .....</b>                                        | <b>6</b>  |
| 1.1.      | <i>The Highest Reported SAR for RF exposure conditions for each bands .....</i> | <i>7</i>  |
| <b>2.</b> | <b>Test Specification, Methods and Procedures.....</b>                          | <b>8</b>  |
| <b>3.</b> | <b>Facilities and Accreditation .....</b>                                       | <b>8</b>  |
| <b>4.</b> | <b>SAR Measurement System &amp; Test Equipment .....</b>                        | <b>9</b>  |
| 4.1.      | <i>SAR Measurement System.....</i>                                              | <i>9</i>  |
| 4.2.      | <i>SAR Scan Procedures.....</i>                                                 | <i>10</i> |
| 4.3.      | <i>Test Equipment.....</i>                                                      | <i>12</i> |
| <b>5.</b> | <b>Measurement Uncertainty.....</b>                                             | <b>13</b> |
| <b>6.</b> | <b>Device Under Test (DUT) Information .....</b>                                | <b>13</b> |
| 6.1.      | <i>DUT Description .....</i>                                                    | <i>13</i> |
| 6.2.      | <i>Wireless Technologies.....</i>                                               | <i>14</i> |
| 6.3.      | <i>Nominal and Maximum Output Power.....</i>                                    | <i>15</i> |
| 6.4.      | <i>General LTE SAR Test and Reporting Considerations.....</i>                   | <i>18</i> |
| 6.5.      | <i>LTE (TDD) Considerations.....</i>                                            | <i>20</i> |
| 6.6.      | <i>LTE Carrier Aggregation .....</i>                                            | <i>21</i> |
| 6.7.      | <i>Proximity Sensor feature.....</i>                                            | <i>25</i> |
| 6.7.1.    | <i>Proximity Sensor Triggering Distance (KDB 616217 §6.2).....</i>              | <i>26</i> |
| 6.7.2.    | <i>Proximity Sensor Coverage (KDB 616217 §6.3) .....</i>                        | <i>34</i> |
| 6.7.3.    | <i>Proximity Sensor Tilt Angle Assessment (KDB 616217 §6.4).....</i>            | <i>34</i> |
| 6.7.4.    | <i>Resulting test positions for SAR measurements .....</i>                      | <i>34</i> |
| <b>7.</b> | <b>RF Exposure Conditions (Test Configurations).....</b>                        | <b>35</b> |
| <b>8.</b> | <b>Dielectric Property Measurements &amp; System Check .....</b>                | <b>36</b> |
| 8.1       | <i>Dielectric Property Measurements.....</i>                                    | <i>36</i> |
| 8.2       | <i>System Check.....</i>                                                        | <i>41</i> |
| <b>9.</b> | <b>Conducted Output Power Measurements.....</b>                                 | <b>44</b> |
| 9.1       | <i>GSM .....</i>                                                                | <i>44</i> |
| 9.2       | <i>W-CDMA .....</i>                                                             | <i>46</i> |
| 9.3       | <i>LTE.....</i>                                                                 | <i>52</i> |
| 9.3.1     | <i>LTE Rel. 10 Carrier Aggregation .....</i>                                    | <i>80</i> |
| 9.4       | <i>Wi-Fi 2.4 GHz (DTS Band).....</i>                                            | <i>84</i> |
| 9.5       | <i>Wi-Fi 5GHz (U-NII Bands).....</i>                                            | <i>88</i> |
| 9.6       | <i>Bluetooth .....</i>                                                          | <i>97</i> |

|                                                              |            |
|--------------------------------------------------------------|------------|
| <b>10. Measured and Reported (Scaled) SAR Results</b>        | <b>98</b>  |
| 10.1 GSM 850                                                 | 100        |
| 10.2 GSM1900                                                 | 100        |
| 10.3 W-CDMA Band II                                          | 101        |
| 10.4 W-CDMA Band IV                                          | 101        |
| 10.5 W-CDMA Band V                                           | 102        |
| 10.6 LTE Band 12 (10MHz Bandwidth)                           | 102        |
| 10.7 LTE Band 13 (10MHz Bandwidth)                           | 103        |
| 10.8 LTE Band 25 (20MHz Bandwidth)                           | 104        |
| 10.9 LTE Band 26 (15MHz Bandwidth)                           | 105        |
| 10.10 LTE Band 41 (20MHz Bandwidth)                          | 106        |
| 10.11 LTE Band 66 (20MHz Bandwidth)                          | 108        |
| 10.12 Wi-Fi (DTS Band)                                       | 109        |
| 10.13 Wi-Fi (U-NII Bands)                                    | 110        |
| 10.14 Bluetooth                                              | 113        |
| <b>11. SAR Measurement Variability</b>                       | <b>114</b> |
| <b>12. DUT Holder Perturbations</b>                          | <b>115</b> |
| <b>13. Simultaneous Transmission SAR Analysis</b>            | <b>116</b> |
| 13.1 Sum of the SAR for GSM 850 & Wi-Fi & BT                 | 119        |
| 13.2 Sum of the SAR for GSM 1900 & Wi-Fi & BT                | 119        |
| 13.3 Sum of the SAR for WCDMA Band II & Wi-Fi & BT           | 120        |
| 13.4 Sum of the SAR for WCDMA Band IV & Wi-Fi & BT           | 120        |
| 13.5 Sum of the SAR for WCDMA Band V & Wi-Fi & BT            | 121        |
| 13.6 Sum of the SAR for LTE Band 12 & Wi-Fi & BT             | 121        |
| 13.7 Sum of the SAR for LTE Band 13 & Wi-Fi & BT             | 121        |
| 13.8 Sum of the SAR for LTE Band 25 & Wi-Fi & BT             | 122        |
| 13.9 Sum of the SAR for LTE Band 26 & Wi-Fi & BT             | 122        |
| 13.10 Sum of the SAR for LTE Band 41 & Wi-Fi & BT            | 122        |
| 13.11 Sum of the SAR for LTE Band 66 & Wi-Fi & BT            | 123        |
| 13.12 Sum of the SAR for WWAN & Wi-Fi (RSDB)                 | 123        |
| <b>Appendixes</b>                                            | <b>124</b> |
| 4789247752-S1V2 FCC Report SAR_App A_Photos & Ant. Locations | 124        |
| 4789247752-S1V2 FCC Report SAR_App B_Highest SAR Test Plots  | 124        |
| 4789247752-S1V2 FCC Report SAR_App C_System Check Plots      | 124        |
| 4789247752-S1V2 FCC Report SAR_App D_SAR Tissue Ingredients  | 124        |
| 4789247752-S1V2 FCC Report SAR_App E_Probe Cal. Certificates | 124        |

---

|                                                                    |     |
|--------------------------------------------------------------------|-----|
| 4789247752-S1V2 FCC Report SAR_App F_Dipole Cal. Certificates..... | 124 |
|--------------------------------------------------------------------|-----|

## 1. Attestation of Test Results

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                   |                                                                                     |                                         |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------|------|
| Applicant Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | SAMSUNG ELECTRONICS CO.,LTD.                                                      |                                                                                     |                                         |      |
| FCC ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | A3LSMG980F                                                                        |                                                                                     |                                         |      |
| Model Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SM-G980F/DS, SM-G980F                                                             |                                                                                     |                                         |      |
| Applicable Standards                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | FCC 47 CFR § 2.1093<br>IEEE Std 1528-2013<br>Published RF exposure KDB procedures |                                                                                     |                                         |      |
| Exposure Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | SAR Limits (W/Kg)                                                                 |                                                                                     |                                         |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Peak spatial-average<br>(1g of tissue)                                            |                                                                                     | Product Specific 10g<br>(10g of tissue) |      |
| General population /<br>Uncontrolled exposure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1.6                                                                               |                                                                                     | 4.0                                     |      |
| RF Exposure Conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Equipment Class - The Highest Reported SAR (W/kg)                                 |                                                                                     |                                         |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | PCE                                                                               | DTS                                                                                 | U-NII                                   | DSS  |
| Head                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.37                                                                              | 0.63                                                                                | < 0.10                                  | 0.76 |
| Body-worn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1.01                                                                              | < 0.10                                                                              | 0.45                                    | 0.11 |
| Hotspot                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1.34                                                                              | 0.35                                                                                | 0.55                                    | 0.25 |
| Product Specific 10g                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2.67                                                                              | N/A                                                                                 | 0.91                                    | N/A  |
| Simultaneous<br>TX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Head                                                                              | 1.19                                                                                | 1.10                                    | 1.19 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Body-worn                                                                         | 1.57                                                                                | 1.26                                    | 1.57 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Hotspot                                                                           | 1.59                                                                                | 1.44                                    | 1.59 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Product Specific 10g                                                              | 3.59                                                                                | N/A                                     | 3.59 |
| Date Tested                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 11/7/2019 to 12/23/2019                                                           |                                                                                     |                                         |      |
| Test Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Pass                                                                              |                                                                                     |                                         |      |
| <p>UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.</p> <p><b>Note:</b> The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.</p> |                                                                                   |                                                                                     |                                         |      |
| Approved & Released By:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                   | Prepared By:                                                                        |                                         |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                   |  |                                         |      |
| Justin Park<br>Operations Leader<br>UL Korea, Ltd. Suwon Laboratory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   | Sanghwa Lee<br>Senior Laboratory Technician<br>UL Korea, Ltd. Suwon Laboratory      |                                         |      |

**1.1. The Highest Reported SAR for RF exposure conditions for each bands**

| Equipment Class | Band          | The Highest Reported SAR (W/kg) |                              |                            |                                     |
|-----------------|---------------|---------------------------------|------------------------------|----------------------------|-------------------------------------|
|                 |               | 1g of tissue                    |                              |                            | 10g of tissue                       |
|                 |               | Head Exposure condition         | Body-worn Exposure condition | Hotspot Exposure condition | Product Specific Exposure condition |
| PCE             | GSM 850       | 0.207                           | 0.444                        | 0.633                      | N/A                                 |
|                 | GSM 1900      | 0.067                           | 0.303                        | 1.202                      | 1.610                               |
|                 | WCDMA Band II | 0.172                           | 0.710                        | 1.233                      | 1.846                               |
|                 | WCDMA Band IV | 0.246                           | <b>1.011</b>                 | 1.199                      | <b>2.673</b>                        |
|                 | WCDMA Band V  | 0.214                           | 0.230                        | 0.682                      | N/A                                 |
|                 | LTE Band 2    | N/A                             | N/A                          | N/A                        | N/A                                 |
|                 | LTE Band 4    | N/A                             | N/A                          | N/A                        | N/A                                 |
|                 | LTE Band 5    | N/A                             | N/A                          | N/A                        | N/A                                 |
|                 | LTE Band 12   | 0.142                           | 0.240                        | 0.325                      | N/A                                 |
|                 | LTE Band 13   | 0.185                           | 0.342                        | 0.451                      | N/A                                 |
|                 | LTE Band 17   | N/A                             | N/A                          | N/A                        | N/A                                 |
|                 | LTE Band 25   | 0.191                           | 0.865                        | <b>1.339</b>               | 1.976                               |
|                 | LTE Band 26   | <b>0.373</b>                    | 0.530                        | 0.805                      | N/A                                 |
|                 | LTE Band 41   | 0.084                           | 0.286                        | 0.947                      | N/A                                 |
|                 | LTE Band 66   | 0.289                           | 0.997                        | 1.197                      | 2.558                               |
| DTS             | 2.4GHz WLAN   | <b>0.625</b>                    | <b>0.099</b>                 | <b>0.353</b>               | N/A                                 |
| UNII            | 5GHz WLAN     | <b>0.034</b>                    | <b>0.447</b>                 | <b>0.548</b>               | <b>0.913</b>                        |
| DSS             | Bluetooth     | <b>0.761</b>                    | <b>0.107</b>                 | <b>0.254</b>               | N/A                                 |

## 2. Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE STD 1528-2013, ANSI C63.26-2015 the following FCC Published RF exposure [KDB](#) procedures:

- 248227 D01 802.11 Wi-Fi SAR v02r02
- 447498 D01 General RF Exposure Guidance v06
- 648474 D04 Handset SAR v01r03
- 690783 D01 SAR Listings on Grants v01r03
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- 865664 D02 RF Exposure Reporting v01r02
- 941225 D01 3G SAR Procedures v03r01
- 941225 D05 SAR for LTE Devices v02r05
- 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02
- 941225 D06 Hotspot Mode v02r01
- 941225 D07 UMPC Mini Tablet v01r02
- 971168 D01 Power Meas License Digital System v03r01

In addition to the above, the following information was used:

- [TCB workshop](#) October, 2014; Page 36, RF Exposure Procedures Update (Overlapping LTE Bands)
- [TCB workshop](#) October, 2014; Page 37, RF Exposure Procedures Update (Other LTE Considerations)
- [TCB workshop](#) October, 2016; Page 7, RF Exposure Procedures (Bluetooth Duty Factor)
- [TCB workshop](#) October, 2016; Page 18, RF Exposure Procedures (DUT Holder Perturbations)
- [TCB workshop](#) May, 2017; Page 6, RF Exposure Procedures (LTE Test Conditions)
- [TCB workshop](#) May, 2017; Page 7, RF Exposure Procedures (LTE Band 41 Power Class 2)
- [TCB workshop](#) April, 2018; Page 3, RF Exposure Procedures (LTE DL CA SAR Test Exclusion Update)
- [TCB workshop](#) April, 2019; Page 10, Exposure Procedures (802.11ax SAR Testing)
- [TCB workshop](#) April, 2019; Page 19, RF Exposure Procedures (Tissue Simulating Liquids (TSL))

## 3. Facilities and Accreditation

The test sites and measurement facilities used to collect data are located at

|            |
|------------|
| Suwon      |
| SAR 1 Room |
| SAR 2 Room |
| SAR 3 Room |
| SAR 4 Room |
| SAR 5 Room |

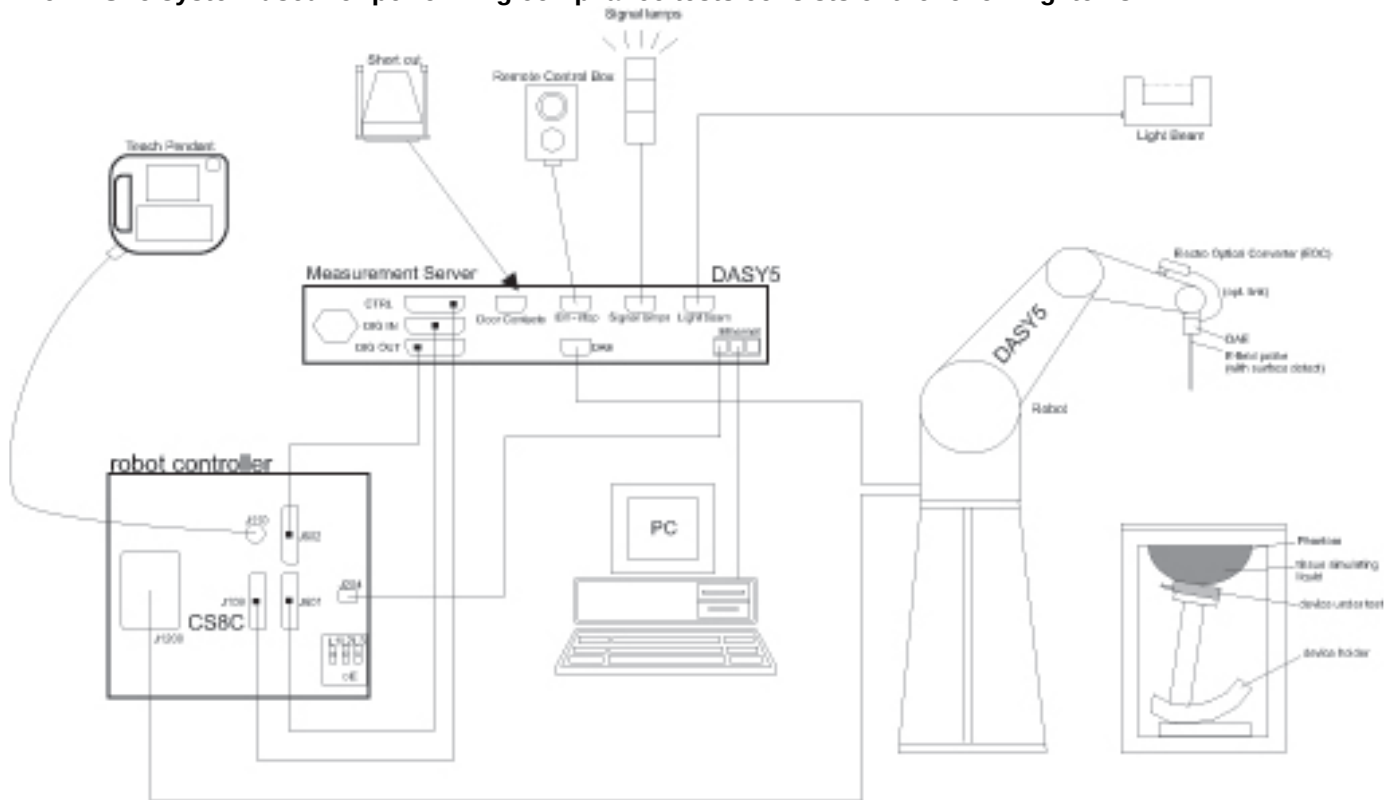
UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637.

The full scope of accreditation can be viewed at <http://www.iasonline.org/PDF/TL/TL-637.pdf>.

## 4. SAR Measurement System & Test Equipment

### 4.1. SAR Measurement System

The DASY5 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.

## 4.2. SAR Scan Procedures

### Step 1: 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. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

### Step 2: 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 locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) 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 KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

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

**Step 3: Zoom Scan**

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

Zoom Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

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

**Step 4: Power drift measurement**

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

**Step 5: Z-Scan (FCC only)**

The Z Scan measures points along a vertical straight line. The line runs along the Z-axis of a one-dimensional grid. In order to get a reasonable extrapolation the extrapolated distance should not be larger than the step size in Z-direction.

### 4.3. Test Equipment

The measuring equipment used to perform the tests documented in this report has been calibrated in accordance with the manufacturers' recommendations, and is traceable to recognized national standards.

#### Dielectric Property Measurements

| Name of Equipment         | Manufacturer | Type/Model    | Serial No.    | Cal. Due Date |
|---------------------------|--------------|---------------|---------------|---------------|
| Network Analyzer          | Agilent      | E5071C        | MY46522054    | 8-7-2020      |
| Dielectric Assessment Kit | SPEAG        | DAK-3.5       | 1196          | 6-18-2020     |
| Shorting block            | SPEAG        | DAK-3.5 Short | SM DAK 200 BA | N/A           |
| Thermometer               | LKM          | DTM3000       | 3424          | 8-9-2020      |

#### System Check

| Name of Equipment                   | Manufacturer | Type/Model            | Serial No. | Cal. Due Date |
|-------------------------------------|--------------|-----------------------|------------|---------------|
| MXG Analog Signal Generator         | Agilent      | N5181A                | MY50145882 | 8-6-2020      |
| Power Sensor                        | Agilent      | U2000A                | MY54260010 | 8-9-2020      |
| Power Sensor                        | Agilent      | U2000A                | MY54260007 | 8-9-2020      |
| Power Amplifier                     | EXODUS       | 1410025-AMP2027-10003 | 10003      | 8-8-2020      |
| Directional Coupler                 | Agilent      | 772D                  | MY52180193 | 8-7-2020      |
| Directional Coupler                 | Agilent      | 778D                  | MY52180432 | 8-7-2020      |
| Low Pass Filter                     | MICROLAB     | LA-15N                | 03943      | 8-7-2020      |
| Low Pass Filter                     | FILTRON      | L14012FL              | 1410003S   | 8-7-2020      |
| Low Pass Filter                     | MICROLAB     | LA-60N                | 03942      | 8-7-2020      |
| Attenuator                          | Agilent      | 8491B/003             | MY39269292 | 8-7-2020      |
| Attenuator                          | Agilent      | 8491B/010             | MY39269315 | 8-7-2020      |
| Attenuator                          | Agilent      | 8491B/020             | MY39269298 | 8-7-2020      |
| E-Field Probe (SAR1)                | SPEAG        | EX3DV4                | 7376       | 9-27-2020     |
| E-Field Probe (SAR2)                | SPEAG        | EX3DV4                | 7330       | 1-31-2020     |
| E-Field Probe (SAR3)                | SPEAG        | EX3DV4                | 7314       | 8-29-2020     |
| E-Field Probe (SAR4)                | SPEAG        | EX3DV4                | 7545       | 9-23-2020     |
| E-Field Probe (SAR5)                | SPEAG        | EX3DV4                | 3871       | 8-29-2020     |
| Data Acquisition Electronics (SAR1) | SPEAG        | DAE4                  | 1494       | 7-18-2020     |
| Data Acquisition Electronics (SAR2) | SPEAG        | DAE4                  | 1447       | 3-21-2020     |
| Data Acquisition Electronics (SAR3) | SPEAG        | DAE4                  | 1468       | 9-20-2020     |
| Data Acquisition Electronics (SAR4) | SPEAG        | DAE4                  | 1591       | 9-11-2020     |
| Data Acquisition Electronics (SAR5) | SPEAG        | DAE4                  | 1343       | 8-27-2020     |
| System Validation Dipole            | SPEAG        | D750V3                | 1122       | 2-19-2020     |
| System Validation Dipole            | SPEAG        | D835V2                | 4d174      | 1-23-2021     |
| System Validation Dipole            | SPEAG        | D1750V2               | 1125       | 2-16-2020     |
| System Validation Dipole            | SPEAG        | D1900V2               | 5d190      | 10-23-2020    |
| System Validation Dipole            | SPEAG        | D2450V2               | 939        | 7-25-2021     |
| System Validation Dipole            | SPEAG        | D2600V2               | 1097       | 9-19-2021     |
| System Validation Dipole            | SPEAG        | D5GHzV2               | 1209       | 2-28-2021     |
| Thermometer (SAR1)                  | Lutron       | MHB-382SD             | AH.91463   | 8-8-2020      |
| Thermometer (SAR2)                  | Lutron       | MHB-382SD             | AH.50215   | 8-8-2020      |
| Thermometer (SAR3)                  | Lutron       | MHB-382SD             | AH.50213   | 8-8-2020      |
| Thermometer (SAR4),(SAR5)           | Lutron       | MHB-382SD             | AJ.45903   | 5-17-2020     |

#### Others

| Name of Equipment            | Manufacturer | Type/Model | Serial No.  | Cal. Due Date |
|------------------------------|--------------|------------|-------------|---------------|
| Base Station Simulator       | R & S        | CMW500     | 150313      | 8-8-2020      |
| Base Station Simulator       | R & S        | CMW500     | 150314      | 8-8-2020      |
| Base Station Simulator       | R & S        | CMW500     | 162790      | 8-9-2020      |
| Wireless Connectivity Tester | R & S        | CMW270     | 100982      | 8-5-2020      |
| Bluetooth Tester             | TESCOM       | TC-3000C   | 3000C000546 | 8-7-2020      |

#### Note(s):

Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations.  
(D750V3, SN : 1122, D1750V2, SN : 1125, D1900, SN : 5d190)

## 5. Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, 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.

## 6. Device Under Test (DUT) Information

### 6.1. DUT Description

|                           |                                                                                                                                                                                                                                                                                                              |             |                      |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|
| Device Dimension          | Refer to Appendix A                                                                                                                                                                                                                                                                                          |             |                      |
| Back Cover                | <input checked="" type="checkbox"/> The Back Cover is not removable.                                                                                                                                                                                                                                         |             |                      |
| Battery Options           | <input checked="" type="checkbox"/> The rechargeable battery is not user accessible                                                                                                                                                                                                                          |             |                      |
| Wireless Router (Hotspot) | Wi-Fi Hotspot mode permits the device to share its cellular data connection with other Wi-Fi-enabled devices.<br><input checked="" type="checkbox"/> Mobile Hotspot (Wi-Fi 2.4 GHz)<br><input checked="" type="checkbox"/> Mobile Hotspot (Wi-Fi 5.8 GHz UNII-3 (Ch.149(20Mhz)/Ch.151(40Mhz)/Ch.155(80Mhz))) |             |                      |
| Wi-Fi Direct              | Wi-Fi Direct enabled devices transfer data directly between each other<br><input checked="" type="checkbox"/> Wi-Fi Direct (Wi-Fi 2.4 GHz)<br><input checked="" type="checkbox"/> Wi-Fi Direct (Wi-Fi 5 GHz : Ch.36 – Ch.48, Ch.149 – Ch.161))                                                               |             |                      |
| Test Sample Information   | <b>No.</b>                                                                                                                                                                                                                                                                                                   | <b>S/N</b>  | <b>Notes</b>         |
|                           | 1                                                                                                                                                                                                                                                                                                            | R38MB0AHJJR | Wi-Fi & BT Conducted |
|                           | 2                                                                                                                                                                                                                                                                                                            | R38MB03YDPZ | Main Conducted       |
|                           | 3                                                                                                                                                                                                                                                                                                            | R38MB0AHJLF | Main Conducted       |
|                           | 4                                                                                                                                                                                                                                                                                                            | R38MB03ZDPJ | Main Conducted       |
|                           | 5                                                                                                                                                                                                                                                                                                            | R38MB03Z6MJ | Main Conducted       |
|                           | 6                                                                                                                                                                                                                                                                                                            | R38MB0AJ6ZV | Main Conducted       |
|                           | 7                                                                                                                                                                                                                                                                                                            | R38MA0J09TX | SAR                  |
|                           | 8                                                                                                                                                                                                                                                                                                            | R38MA0J09DY | SAR                  |
|                           | 9                                                                                                                                                                                                                                                                                                            | R38MB0AHJTV | SAR                  |
|                           | 10                                                                                                                                                                                                                                                                                                           | R38MB0AHJPT | SAR                  |
|                           | 11                                                                                                                                                                                                                                                                                                           | R38MB0AHJMB | SAR                  |
|                           | 12                                                                                                                                                                                                                                                                                                           | R38MB03Z4BW | SAR                  |
|                           | 13                                                                                                                                                                                                                                                                                                           | R38MB03Z3RV | SAR                  |
|                           | 14                                                                                                                                                                                                                                                                                                           | R3CMB03ZCGW | SAR                  |
|                           | 15                                                                                                                                                                                                                                                                                                           | R38MB03ZCXN | SAR                  |
|                           | 16                                                                                                                                                                                                                                                                                                           | R38MB03ZDAF | SAR                  |

## 6.2. Wireless Technologies

| Wireless technologies | Frequency bands                                                                                                                                              | Operating mode                                                                                                                                                   |                                                                                                                                                                                                                                                  | Duty Cycle used for SAR testing                                                                                            |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| GSM                   | 850<br>1900                                                                                                                                                  | Voice (GMSK)<br>GPRS (GMSK)<br>EGPRS (8PSK)                                                                                                                      | GPRS Multi-Slot Class:<br><input type="checkbox"/> Class 8 - 1 Up, 4 Down<br><input type="checkbox"/> Class 10 - 2 Up, 4 Down<br><input type="checkbox"/> Class 12 - 4 Up, 4 Down<br><input checked="" type="checkbox"/> Class 33 - 4 Up, 5 Down | GSM Voice: 12.5%<br>(E)GPRS: 1 Slot: 12.5%<br>2 Slots: 25%<br>3 Slots: 37.5%<br>4 Slots: 50%                               |
|                       | Does this device support DTM (Dual Transfer Mode)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                       |                                                                                                                                                                  |                                                                                                                                                                                                                                                  |                                                                                                                            |
| W-CDMA (UMTS)         | Band II<br>Band IV<br>Band V                                                                                                                                 | UMTS Rel. 99 (Voice & Data)<br>HSDPA (Category 24)<br>HSUPA (Category 6)<br>DC-HSDPA (Category 24)<br>HSPA+ (DL only)                                            |                                                                                                                                                                                                                                                  | 100%                                                                                                                       |
| LTE                   | FDD Band 2<br>FDD Band 4<br>FDD Band 5<br>FDD Band 12<br>FDD Band 13<br>FDD Band 17<br>FDD Band 25<br>FDD Band 26<br>FDD Band 66<br>TDD Band 41 <sup>1</sup> | QPSK<br>16QAM<br>64QAM<br>256QAM<br>Rel. 15 Carrier Aggregation (1 Uplink and 4 Downlinks)                                                                       |                                                                                                                                                                                                                                                  | 100% (FDD)<br>63.3% (TDD, Power class 3)<br>43.3% (TDD, Power class 2)                                                     |
|                       | Does this device support SV-LTE (1xRTT-LTE)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                             |                                                                                                                                                                  |                                                                                                                                                                                                                                                  |                                                                                                                            |
| Wi-Fi                 | 2.4 GHz                                                                                                                                                      | 802.11b<br>802.11g<br>802.11n (HT20)<br>802.11ax (HE20)                                                                                                          |                                                                                                                                                                                                                                                  | SISO Mode<br>99.7% (802.11b)<br>MIMO Mode<br>98.2% (802.11g)                                                               |
|                       | 5 GHz                                                                                                                                                        | 802.11a<br>802.11n (HT20)<br>802.11n (HT40)<br>802.11ac (VHT20)<br>802.11ac (VHT40)<br>802.11ac (VHT80)<br>802.11ax (HE20)<br>802.11ax (HE40)<br>802.11ax (HE80) |                                                                                                                                                                                                                                                  | SISO Mode<br>98.2% (802.11a)<br>98.1% (802.11ac 80MHz BW)<br><br>MIMO Mode<br>98.2% (802.11a)<br>98.0% (802.11ac 80MHz BW) |
|                       | Does this device support bands 5.60 ~ 5.65 GHz? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                          |                                                                                                                                                                  |                                                                                                                                                                                                                                                  |                                                                                                                            |
|                       | Does this device support Band gap channel(s)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                            |                                                                                                                                                                  |                                                                                                                                                                                                                                                  |                                                                                                                            |
| Bluetooth             | 2.4 GHz                                                                                                                                                      | Version 5.0 LE                                                                                                                                                   |                                                                                                                                                                                                                                                  | 76.9% (DH5)                                                                                                                |

### Notes:

- For LTE Band 41, This device supports uplink-downlink configuration 0-6. The configuration with the highest duty cycle was used for Power class 3 (uplink-downlink configuration 0 at 63.3%). Power class 2 does not support uplink-downlink configuration 0 and 6, therefore the highest available duty cycle was used for Power class 2 (uplink-downlink configuration 1 at 43.3%).
- The Bluetooth protocol is considered source-based averaging. Bluetooth GFSK (DH5) was verified to have the highest duty cycle of 76.9% and was considered and used for SAR Testing.
- For SAR evaluation of determined 802.11 modes according to KDB 248227, Duty cycle for Wi-Fi is referenced from DTS and UNIL report.

### 6.3. Nominal and Maximum Output Power

KDB 447498 sec.4.1. at the maximum rated output power and within the tune-up tolerance range specified for the product, but not more than 2 dB lower than the maximum tune-up tolerance limit

| RF Air interface | Antenna      | Mode  | Time Slots | Max. RF Output Power (dBm) |             | Reduced. RF Output Power (dBm) |             |
|------------------|--------------|-------|------------|----------------------------|-------------|--------------------------------|-------------|
|                  |              |       |            | Tune-up Limit              | Frame Power | Tune-up Limit                  | Frame Power |
| GSM850           | Main Ant.1-1 | Voice | 1          | 34.0                       | 25.0        |                                |             |
|                  |              | GPRS  | 1          | 34.0                       | 25.0        |                                |             |
|                  |              | GPRS  | 2          | 31.0                       | 25.0        |                                |             |
|                  |              | GPRS  | 3          | 30.0                       | 25.7        |                                |             |
|                  |              | GPRS  | 4          | 29.0                       | 26.0        |                                |             |
|                  |              | EGPRS | 1          | 26.5                       | 17.5        |                                |             |
|                  |              | EGPRS | 2          | 23.5                       | 17.5        |                                |             |
|                  |              | EGPRS | 3          | 22.5                       | 18.2        |                                |             |
| GSM1900          | Main Ant.1-1 | EGPRS | 4          | 21.5                       | 18.5        |                                |             |
|                  |              | Voice | 1          | 31.0                       | 22.0        | 30.0                           | 21.0        |
|                  |              | GPRS  | 1          | 31.0                       | 22.0        | 30.0                           | 21.0        |
|                  |              | GPRS  | 2          | 27.5                       | 21.5        | 26.5                           | 20.5        |
|                  |              | GPRS  | 3          | 26.0                       | 21.7        | 25.0                           | 20.7        |
|                  |              | GPRS  | 4          | 25.0                       | 22.0        | 24.0                           | 21.0        |
|                  |              | EGPRS | 1          | 26.5                       | 17.5        | 25.5                           | 16.5        |
|                  |              | EGPRS | 2          | 23.0                       | 17.0        | 22.0                           | 16.0        |
|                  |              | EGPRS | 3          | 21.5                       | 17.2        | 20.5                           | 16.2        |
|                  |              | EGPRS | 4          | 20.5                       | 17.5        | 19.5                           | 16.5        |

| RF Air interface | Antenna      | Mode     | Max. RF Output Power (dBm) | Reduced. RF Output Power (dBm) |
|------------------|--------------|----------|----------------------------|--------------------------------|
| W-CDMA Band II   | Main Ant.1-1 | R99      | 25.0                       | 21.5                           |
|                  |              | HSDPA    | 23.5                       | 21.0                           |
|                  |              | HSUPA    | 24.0                       | 21.0                           |
|                  |              | DC-HSDPA | 23.5                       | 21.0                           |
| W-CDMA Band IV   | Main Ant.1-1 | R99      | 25.0                       | 22.0                           |
|                  |              | HSDPA    | 24.0                       | 21.0                           |
|                  |              | HSUPA    | 24.0                       | 21.0                           |
|                  |              | DC-HSDPA | 24.0                       | 21.0                           |
| W-CDMA Band V    | Main Ant.1-1 | R99      | 25.5                       |                                |
|                  |              | HSDPA    | 23.5                       |                                |
|                  |              | HSUPA    | 23.0                       |                                |
|                  |              | DC-HSDPA | 23.5                       |                                |

#### Notes:

- The device utilizes power reduction under some portable hotspot conditions for SAR compliance. There is power reduction for WWAN bands (GSM1900, WCDMA Band II, IV). The reduced powers were confirmed via conducted power measurements the RF port. Detailed description of the hotspot power reduction mechanism is included in the operational description.
- WWAN bands (GSM1900, WCDMA Band II, IV) has support to proximity sensor back-off function. it is operating during extremity (hand-held) use conditions. And This function is applied to Product Specific 10-g SAR exposure condition. Other Head and Body exposure conditions are performed SAR test at full power. The proximity sensor details explain in SAR report according to Section 6 in KDB 616217.

| RF Air interface               | Antenna      | Mode | Max. RF Output Power (dBm) | Reduced. RF Output Power (dBm) |
|--------------------------------|--------------|------|----------------------------|--------------------------------|
| LTE Band 2*                    | Main Ant.1-1 | QPSK | 24.5                       | 20.5                           |
| LTE Band 4*                    | Main Ant.1-1 | QPSK | 24.5                       | 21.5                           |
| LTE Band 5*                    | Main Ant.1-1 | QPSK | 25.5                       |                                |
| LTE Band 12                    | Main Ant.1-1 | QPSK | 25.5                       |                                |
| LTE Band 13                    | Main Ant.1-1 | QPSK | 25.5                       |                                |
| LTE Band 17*                   | Main Ant.1-1 | QPSK | 25.5                       |                                |
| LTE Band 25                    | Main Ant.1-1 | QPSK | 24.5                       | 20.5                           |
| LTE Band 26                    | Main Ant.1-1 | QPSK | 25.5                       |                                |
| LTE Band 66                    | Main Ant.1-1 | QPSK | 24.5                       |                                |
| LTE Band 41<br>-Power Class 3- | Main Ant.1-2 | QPSK | 23.5                       |                                |
| LTE Band 41<br>-Power Class 2- | Main Ant.1-2 | QPSK | 26.5                       |                                |

**Notes:**

1. The device utilizes power reduction under some portable hotspot conditions for SAR compliance. There is power reduction for WWAN bands (LTE Band 2, 4, 25, 66, 41(PC2)). The reduced powers were confirmed via conducted power measurements the RF port. Detailed description of the hotspot power reduction mechanism is included in the operational description.
2. WWAN bands (LTE Band 2, 4, 25, 66) has support to proximity sensor back-off function. it is operating during extremity (hand-held) use conditions. And This function is applied to Product Specific 10-g SAR exposure condition. Other Head and Body exposure conditions are performed SAR test at full power. The proximity sensor details explain in SAR report according to Section 6 in KDB 616217.
3. LTE QPSK configuration has the highest maximum average output power per 3GPP standard.
4. LTE Band 2 (Frequency range: 1850-1910 MHz) is covered by LTE Band 25 (Frequency range: 1850-1915 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.
5. LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to overlapping frequency range, same maximum tune-up limit and larger channel bandwidth.
6. LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.
7. LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

| RF Air interface                    | Mode           | Normal WLAN mode power (dBm) |                          | RSDB WLAN mode power (dBm) |                          |
|-------------------------------------|----------------|------------------------------|--------------------------|----------------------------|--------------------------|
|                                     |                | Max. RF Output Power         | Reduced. RF Output Power | Max. RF Output Power       | Reduced. RF Output Power |
| WiFi 2.4 GHz<br>(Ch.1)              | 802.11b        | 19.0                         | 16.0                     | 16.0                       | 14.0                     |
|                                     | 802.11g        | 16.0                         | 16.0                     | 16.0                       | 14.0                     |
|                                     | 802.11n HT20   | 15.0                         | 15.0                     | 15.0                       | 14.0                     |
|                                     | 802.11ax HE20  | 15.0                         | 15.0                     | 15.0                       | 14.0                     |
| WiFi 2.4 GHz<br>(Ch.2 - Ch.10)      | 802.11b        | 19.0                         | 16.0                     | 16.0                       | 14.0                     |
|                                     | 802.11g        | 16.0                         | 16.0                     | 16.0                       | 14.0                     |
|                                     | 802.11n HT20   | 16.0                         | 16.0                     | 16.0                       | 14.0                     |
|                                     | 802.11ax HE20  | 16.0                         | 16.0                     | 16.0                       | 14.0                     |
| WiFi 2.4 GHz<br>(Ch.11)             | 802.11b        | 19.0                         | 16.0                     | 16.0                       | 14.0                     |
|                                     | 802.11g        | 15.0                         | 15.0                     | 15.0                       | 14.0                     |
|                                     | 802.11n HT20   | 15.0                         | 15.0                     | 15.0                       | 14.0                     |
|                                     | 802.11ax HE20  | 15.0                         | 15.0                     | 15.0                       | 14.0                     |
| WiFi 2.4 GHz<br>(Ch.12)             | 802.11b        | 3.5                          | 3.5                      | 3.5                        | 3.5                      |
|                                     | 802.11g        | 3.5                          | 3.5                      | 3.5                        | 3.5                      |
|                                     | 802.11n HT20   | 3.5                          | 3.5                      | 3.5                        | 3.5                      |
|                                     | 802.11ax HE20  | 3.5                          | 3.5                      | 3.5                        | 3.5                      |
| WiFi 2.4 GHz<br>(Ch.13)             | 802.11b        | 1.5                          | 1.5                      | 1.5                        | 1.5                      |
|                                     | 802.11g        | 1.5                          | 1.5                      | 1.5                        | 1.5                      |
|                                     | 802.11n HT20   | 1.5                          | 1.5                      | 1.5                        | 1.5                      |
|                                     | 802.11ax HE20  | 1.5                          | 1.5                      | 1.5                        | 1.5                      |
| WiFi 5 GHz<br>(UNII-1 &<br>UNII-2A) | 802.11a        | 17.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11n HT20   | 17.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11n HT40   | 15.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11ac VHT20 | 17.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11ac VHT40 | 15.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11ac VHT80 | 14.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11ax HE20  | 17.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11ax HE40  | 15.0                         | 13.0                     | 14.0                       | 13.0                     |
| WiFi 5 GHz<br>(UNII-2C)             | 802.11a        | 14.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11n HT20   | 14.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11n HT40   | 13.0                         | 13.0                     | 13.0                       | 13.0                     |
|                                     | 802.11ac VHT20 | 14.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11ac VHT40 | 13.0                         | 13.0                     | 13.0                       | 13.0                     |
|                                     | 802.11ac VHT80 | 13.0                         | 13.0                     | 13.0                       | 13.0                     |
|                                     | 802.11ax HE20  | 14.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11ax HE40  | 13.0                         | 13.0                     | 13.0                       | 13.0                     |
| WiFi 5 GHz<br>(UNII-3)              | 802.11a        | 17.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11n HT20   | 17.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11n HT40   | 15.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11ac VHT20 | 17.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11ac VHT40 | 15.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11ac VHT80 | 14.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11ax HE20  | 17.0                         | 13.0                     | 14.0                       | 13.0                     |
|                                     | 802.11ax HE40  | 15.0                         | 13.0                     | 14.0                       | 13.0                     |
| Bluetooth                           |                | 17.5                         |                          |                            |                          |
| Bluetooth-EDR                       |                | 12.0                         |                          |                            |                          |
| Bluetooth-LE 1Mbps                  |                | 7.5                          |                          |                            |                          |
| Bluetooth-LE 2Mbps                  |                | 9.0                          |                          |                            |                          |
| Bluetooth-LE 500kbps                |                | 7.5                          |                          |                            |                          |
| Bluetooth-LE 125kbps                |                | 7.5                          |                          |                            |                          |

**Note(s):**

1. This device uses an independent fixed level power reduction mechanism for only Normal WLAN mode operations during RCV operated Detailed descriptions of the power reduction mechanism are included in the operational description.
2. The per stream (antenna) power is the same for SISO and MIMO, but the total MIMO power is 3 dB higher than the individual stream (antenna) power. But this should not impact the simultaneous evaluation because it is already adding the SAR values, per stream(antenna).

## 6.4. General LTE SAR Test and Reporting Considerations

| Item                                                        | Description |                                  |                  |                  |                  |                  |                  |
|-------------------------------------------------------------|-------------|----------------------------------|------------------|------------------|------------------|------------------|------------------|
| Frequency range, Channel Bandwidth, Numbers and Frequencies | Band 2      | Frequency range: 1850 - 1910 MHz |                  |                  |                  |                  |                  |
|                                                             |             | Channel Bandwidth                |                  |                  |                  |                  |                  |
|                                                             |             | 20 MHz                           | 15 MHz           | 10 MHz           | 5 MHz            | 3 MHz            | 1.4 MHz          |
|                                                             | Low         | 18700/<br>1860                   | 18675/<br>1857.5 | 18650/<br>1855   | 18625/<br>1852.5 | 18615/<br>1851.5 | 18607/<br>1850.7 |
|                                                             | Mid         | 18900/<br>1880                   | 18900/<br>1880   | 18900/<br>1880   | 18900/<br>1880   | 18900/<br>1880   | 18900/<br>1880   |
|                                                             | High        | 19100/<br>1900                   | 19125/<br>1902.5 | 19150/<br>1905   | 19175/<br>1907.5 | 19185/<br>1908.5 | 19193/<br>1909.3 |
|                                                             | Band 4      | Frequency range: 1710 - 1755 MHz |                  |                  |                  |                  |                  |
|                                                             |             | Channel Bandwidth                |                  |                  |                  |                  |                  |
|                                                             |             | 20 MHz                           | 15 MHz           | 10 MHz           | 5 MHz            | 3 MHz            | 1.4 MHz          |
|                                                             | Low         | 20050/<br>1720                   | 20025/<br>1717.5 | 20000/<br>1715   | 19975/<br>1712.5 | 19965/<br>1711.5 | 19957/<br>1710.7 |
|                                                             | Mid         | 20175/<br>1732.5                 | 20175/<br>1732.5 | 20175/<br>1732.5 | 20175/<br>1732.5 | 20175/<br>1732.5 | 20175/<br>1732.5 |
|                                                             | High        | 20300/<br>1745                   | 20325/<br>1747.5 | 20350/<br>1750   | 20375/<br>1752.5 | 20385/<br>1753.5 | 20393/<br>1754.3 |
|                                                             | Band 5      | Frequency range: 824 - 849 MHz   |                  |                  |                  |                  |                  |
|                                                             |             | Channel Bandwidth                |                  |                  |                  |                  |                  |
|                                                             |             | 20 MHz                           | 15 MHz           | 10 MHz           | 5 MHz            | 3 MHz            | 1.4 MHz          |
|                                                             | Low         |                                  |                  | 20450/<br>829    | 20425/<br>826.5  | 20415/<br>825.5  | 20407/<br>824.7  |
|                                                             | Mid         |                                  |                  | 20525/<br>836.5  | 20525/<br>836.5  | 20525/<br>836.5  | 20525/<br>836.5  |
|                                                             | High        |                                  |                  | 20600/<br>844    | 20625/<br>846.5  | 20635/<br>847.5  | 20643/<br>848.3  |
|                                                             | Band 12     | Frequency range: 699 – 716 MHz   |                  |                  |                  |                  |                  |
|                                                             |             | Channel Bandwidth                |                  |                  |                  |                  |                  |
|                                                             |             | 20 MHz                           | 15 MHz           | 10 MHz           | 5 MHz            | 3 MHz            | 1.4 MHz          |
|                                                             | Low         |                                  |                  | 23060/<br>704    | 23035/<br>701.5  | 23025/<br>700.5  | 23017/<br>699.7  |
|                                                             | Mid         |                                  |                  | 23095/<br>707.5  | 23095/<br>707.5  | 23095/<br>707.5  | 23095/<br>707.5  |
|                                                             | High        |                                  |                  | 23130/<br>711    | 23155/<br>713.5  | 23165/<br>714.5  | 23173/<br>715.3  |
|                                                             | Band 13     | Frequency range: 777 - 787 MHz   |                  |                  |                  |                  |                  |
|                                                             |             | Channel Bandwidth                |                  |                  |                  |                  |                  |
|                                                             |             | 20 MHz                           | 15 MHz           | 10 MHz           | 5 MHz            | 3 MHz            | 1.4 MHz          |
|                                                             | Low         |                                  |                  |                  | 23205/<br>779.5  |                  |                  |
|                                                             | Mid         |                                  |                  | 23230/<br>782    | 23230/<br>782    |                  |                  |
|                                                             | High        |                                  |                  |                  | 23255/<br>784.5  |                  |                  |
|                                                             | Band 17     | Frequency range: 704 - 716 MHz   |                  |                  |                  |                  |                  |
|                                                             |             | Channel Bandwidth                |                  |                  |                  |                  |                  |
|                                                             |             | 20 MHz                           | 15 MHz           | 10 MHz           | 5 MHz            | 3 MHz            | 1.4 MHz          |
|                                                             | Low         |                                  |                  | 23780/<br>709    | 23755/<br>706.5  |                  |                  |
|                                                             | Mid         |                                  |                  | 23790/<br>710    | 23790/<br>710    |                  |                  |
|                                                             | High        |                                  |                  | 23800/<br>711    | 23825/<br>713.5  |                  |                  |

**General LTE SAR Test and Reporting Considerations (Continued)**

|                                                                                                                         |                                                                                                                                                                                                         |                                                               |                   |                  |                   |                   |                   |        |
|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-------------------|------------------|-------------------|-------------------|-------------------|--------|
| Frequency range, Channel Bandwidth, Numbers and Frequencies                                                             | Band 25                                                                                                                                                                                                 | Frequency range: 1850 - 1915 MHz                              |                   |                  |                   |                   |                   |        |
|                                                                                                                         |                                                                                                                                                                                                         | Channel Bandwidth                                             |                   |                  |                   |                   |                   |        |
|                                                                                                                         |                                                                                                                                                                                                         | 20 MHz                                                        | 15 MHz            | 10 MHz           | 5 MHz             | 3 MHz             | 1.4 MHz           |        |
|                                                                                                                         | Low                                                                                                                                                                                                     | 26140/<br>1860                                                | 26115/<br>1857.5  | 26090/<br>1855   | 26065/<br>1852.5  | 26055/<br>1851.5  | 26047/<br>1850.7  |        |
|                                                                                                                         | Mid                                                                                                                                                                                                     | 26365/<br>1882.5                                              | 26365/<br>1882.5  | 26365/<br>1882.5 | 26365/<br>1882.5  | 26365/<br>1882.5  | 26365/<br>1882.5  |        |
|                                                                                                                         | High                                                                                                                                                                                                    | 26590/<br>1905                                                | 26615/<br>1907.5  | 26640/<br>1910   | 26665/<br>1912.5  | 26675/<br>1913.5  | 26683/<br>1914.3  |        |
|                                                                                                                         | Band 26                                                                                                                                                                                                 | Frequency range: 814 - 849 MHz                                |                   |                  |                   |                   |                   |        |
|                                                                                                                         |                                                                                                                                                                                                         | Channel Bandwidth                                             |                   |                  |                   |                   |                   |        |
|                                                                                                                         |                                                                                                                                                                                                         | 20 MHz                                                        | 15 MHz            | 10 MHz           | 5 MHz             | 3 MHz             | 1.4 MHz           |        |
|                                                                                                                         | Low                                                                                                                                                                                                     |                                                               | 26765/<br>821.5   | 26740/<br>819    | 26715/<br>816.5   | 26705/<br>815.5   | 26697/<br>814.7   |        |
|                                                                                                                         | Mid                                                                                                                                                                                                     |                                                               | 26865/<br>831.5   | 26865/<br>831.5  | 26865/<br>831.5   | 26865/<br>831.5   | 26865/<br>831.5   |        |
|                                                                                                                         | High                                                                                                                                                                                                    |                                                               | 26965/<br>841.5   | 26990/<br>844    | 27015/<br>846.5   | 27025/<br>847.5   | 27033/<br>848.3   |        |
|                                                                                                                         | Band 41                                                                                                                                                                                                 | Frequency range: 2496 - 2690 MHz                              |                   |                  |                   |                   |                   |        |
|                                                                                                                         |                                                                                                                                                                                                         | Channel Bandwidth                                             |                   |                  |                   |                   |                   |        |
|                                                                                                                         |                                                                                                                                                                                                         | 20 MHz                                                        | 15 MHz            | 10 MHz           | 5 MHz             | 3 MHz             | 1.4 MHz           |        |
|                                                                                                                         | Low                                                                                                                                                                                                     | 39750 / 2506.0                                                |                   |                  |                   |                   |                   |        |
|                                                                                                                         | Low-Mid                                                                                                                                                                                                 | 40185 / 2549.5                                                |                   |                  |                   |                   |                   |        |
|                                                                                                                         | Mid                                                                                                                                                                                                     | 40620 / 2593.0                                                |                   |                  |                   |                   |                   |        |
|                                                                                                                         | Mid-High                                                                                                                                                                                                | 41055 / 2636.5                                                |                   |                  |                   |                   |                   |        |
|                                                                                                                         | High                                                                                                                                                                                                    | 41490 / 2680.0                                                |                   |                  |                   |                   |                   |        |
|                                                                                                                         | Band 66                                                                                                                                                                                                 | Frequency range: 1710 - 1780 MHz                              |                   |                  |                   |                   |                   |        |
|                                                                                                                         |                                                                                                                                                                                                         | Channel Bandwidth                                             |                   |                  |                   |                   |                   |        |
|                                                                                                                         |                                                                                                                                                                                                         | 20 MHz                                                        | 15 MHz            | 10 MHz           | 5 MHz             | 3 MHz             | 1.4 MHz           |        |
|                                                                                                                         | Low                                                                                                                                                                                                     | 132072/<br>1720                                               | 132047/<br>1717.5 | 132022/<br>1715  | 131997/<br>1712.5 | 131987/<br>1711.5 | 131979/<br>1710.7 |        |
|                                                                                                                         | Mid                                                                                                                                                                                                     | 132322/<br>1745                                               | 132322/<br>1745   | 132322/<br>1745  | 132322/<br>1745   | 132322/<br>1745   | 132322/<br>1745   |        |
|                                                                                                                         | High                                                                                                                                                                                                    | 132572/<br>1770                                               | 132597/<br>1772.5 | 132622/<br>1775  | 132647/<br>1777.5 | 132657/<br>1778.5 | 132665/<br>1779.3 |        |
|                                                                                                                         | LTE transmitter and antenna implementation                                                                                                                                                              | Refer to Appendix A.                                          |                   |                  |                   |                   |                   |        |
| Maximum power reduction (MPR)                                                                                           | Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3                                                                                                                                 |                                                               |                   |                  |                   |                   |                   |        |
|                                                                                                                         | Modulation                                                                                                                                                                                              | Channel bandwidth / Transmission bandwidth (N <sub>RB</sub> ) |                   |                  |                   |                   | MPR (dB)          |        |
|                                                                                                                         |                                                                                                                                                                                                         | 1.4 MHz                                                       | 3.0 MHz           | 5 MHz            | 10 MHz            | 15 MHz            |                   | 20 MHz |
|                                                                                                                         | QPSK                                                                                                                                                                                                    | > 5                                                           | > 4               | > 8              | > 12              | > 16              | > 18              | ≤ 1    |
|                                                                                                                         | 16 QAM                                                                                                                                                                                                  | ≤ 5                                                           | ≤ 4               | ≤ 8              | ≤ 12              | ≤ 16              | ≤ 18              | ≤ 1    |
|                                                                                                                         | 16 QAM                                                                                                                                                                                                  | > 5                                                           | > 4               | > 8              | > 12              | > 16              | > 18              | ≤ 2    |
|                                                                                                                         | 64 QAM                                                                                                                                                                                                  | ≤ 5                                                           | ≤ 4               | ≤ 8              | ≤ 12              | ≤ 16              | ≤ 18              | ≤ 2    |
|                                                                                                                         | 64 QAM                                                                                                                                                                                                  | > 5                                                           | > 4               | > 8              | > 12              | > 16              | > 18              | ≤ 3    |
|                                                                                                                         | 256 QAM                                                                                                                                                                                                 | ≥ 1                                                           |                   |                  |                   |                   | ≤ 5               |        |
|                                                                                                                         | MPR Built-in by design                                                                                                                                                                                  |                                                               |                   |                  |                   |                   |                   |        |
| The manufacturer MPR values are always within the 3GPP maximum MPR allowance but may not follow the default MPR values. |                                                                                                                                                                                                         |                                                               |                   |                  |                   |                   |                   |        |
| A-MPR (additional MPR) was disabled during SAR testing                                                                  |                                                                                                                                                                                                         |                                                               |                   |                  |                   |                   |                   |        |
| Power reduction                                                                                                         | Yes                                                                                                                                                                                                     |                                                               |                   |                  |                   |                   |                   |        |
| Spectrum plots for RB configurations                                                                                    | A properly configured base station simulator was used for the SAR and power measurements; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report. |                                                               |                   |                  |                   |                   |                   |        |

**Notes:**

- Maximum bandwidth does not support at least three non-overlapping channels in certain channel bandwidths. 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 per KDB 941225 D05 SAR for LTE devices.
- LTE Band 41 test channels in accordance with October 2014 TCB workshop for all channels bandwidths.
- SAR Testing for LTE was performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

## 6.5. LTE (TDD) Considerations

According to KDB 941225 D05 SAR for LTE Devices, for Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

LTE TDD Bands support 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.

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

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

### Calculated Duty Cycle

| Uplink-Downlink Configuration | Downlink-to-Uplink Switch-point Periodicity | Subframe Number |   |   |   |   |   |   |   |   |   | Calculated Duty Cycle (%) |
|-------------------------------|---------------------------------------------|-----------------|---|---|---|---|---|---|---|---|---|---------------------------|
|                               |                                             | 0               | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |                           |
| 0                             | 5 ms                                        | D               | S | U | U | U | D | S | U | U | U | 63.33                     |
| 1                             | 5 ms                                        | D               | S | U | U | D | D | S | U | U | D | 43.33                     |
| 2                             | 5 ms                                        | D               | S | U | D | D | D | S | U | D | D | 23.33                     |
| 3                             | 10 ms                                       | D               | S | U | U | U | D | D | D | D | D | 31.67                     |
| 4                             | 10 ms                                       | D               | S | U | U | D | D | D | D | D | D | 21.67                     |
| 5                             | 10 ms                                       | D               | S | U | D | D | D | D | D | D | D | 11.67                     |
| 6                             | 5 ms                                        | D               | S | U | U | U | D | S | U | U | D | 53.33                     |

Calculated Duty Cycle = Extended cyclic prefix in uplink  $\times (T_s) \times \#$  of S +  $\#$  of U

Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:

Calculated Duty Cycle =  $5120 \times [1/(15000 \times 2048)] \times 2 + 6 \text{ ms} = 63.33\%$

where

$T_s = 1/(15000 \times 2048)$  seconds

### Note(s):

This device supports uplink-downlink configurations 0-6. The configuration with highest duty cycle was used for SAR Testing: configuration 0 at 63.3% duty cycle for Power class 3, configuration 1 at 43.3% duty cycle for Power class 2

## 6.6. LTE Carrier Aggregation

### DL Inter-Band (2CC Max)

| E-UTRA CA configuration (BCS)   | E-UTRA Band | Bandwidth |       |       |        |        |        | Max Aggregated BW |
|---------------------------------|-------------|-----------|-------|-------|--------|--------|--------|-------------------|
|                                 |             | 1.4 MHz   | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz |                   |
| CA_2A-4A<br>(0)(1)(2)           | Band 2      | Yes       | Yes   | Yes   | Yes    | Yes    | Yes    | 40 MHz            |
|                                 | Band 4      |           |       | Yes   | Yes    | Yes    | Yes    |                   |
|                                 | Band 2      |           |       | Yes   | Yes    |        |        | 20 MHz            |
|                                 | Band 4      |           |       | Yes   | Yes    |        |        |                   |
|                                 | Band 2      |           |       | Yes   | Yes    | Yes    | Yes    | 40 MHz            |
|                                 | Band 4      |           |       | Yes   | Yes    | Yes    | Yes    |                   |
| CA_2A-5A<br>(0)(1)              | Band 2      |           |       | Yes   | Yes    | Yes    | Yes    | 30 MHz            |
|                                 | Band 5      |           |       | Yes   | Yes    |        |        |                   |
|                                 | Band 2      |           |       | Yes   | Yes    |        |        | 20 MHz            |
|                                 | Band 5      |           |       | Yes   | Yes    |        |        |                   |
| CA_2A-12A<br>(0)(1)(2)          | Band 2      |           |       | Yes   | Yes    | Yes    | Yes    | 30 MHz            |
|                                 | Band 12     |           |       | Yes   | Yes    |        |        |                   |
|                                 | Band 2      |           |       | Yes   | Yes    | Yes    | Yes    | 30 MHz            |
|                                 | Band 12     |           | Yes   | Yes   | Yes    |        |        |                   |
|                                 | Band 2      |           |       | Yes   | Yes    |        |        | 20 MHz            |
|                                 | Band 12     |           |       | Yes   | Yes    |        |        |                   |
| CA_2A-13A<br>(0)(1)             | Band 2      |           |       | Yes   | Yes    | Yes    | Yes    | 30 MHz            |
|                                 | Band 13     |           |       |       | Yes    |        |        |                   |
|                                 | Band 2      |           |       | Yes   | Yes    |        |        | 20 MHz            |
|                                 | Band 13     |           |       |       | Yes    |        |        |                   |
| CA_2A-17A (0)                   | Band 2      |           |       | Yes   | Yes    |        |        | 20 MHz            |
|                                 | Band 17     |           |       | Yes   | Yes    |        |        |                   |
| CA_2A-66A<br>(0)(1)(2)          | Band 2      | Yes       | Yes   | Yes   | Yes    | Yes    | Yes    | 40 MHz            |
|                                 | Band 66     |           |       | Yes   | Yes    | Yes    | Yes    |                   |
|                                 | Band 2      |           |       | Yes   | Yes    |        |        | 20 MHz            |
|                                 | Band 66     |           |       | Yes   | Yes    |        |        |                   |
|                                 | Band 2      |           |       | Yes   | Yes    | Yes    | Yes    | 40 MHz            |
|                                 | Band 66     |           |       | Yes   | Yes    | Yes    | Yes    |                   |
| CA_4A-5A<br>(0)(1)              | Band 4      |           |       | Yes   | Yes    |        |        | 20 MHz            |
|                                 | Band 5      |           |       | Yes   | Yes    |        |        |                   |
|                                 | Band 4      |           |       | Yes   | Yes    | Yes    | Yes    | 30 MHz            |
|                                 | Band 5      |           |       | Yes   | Yes    |        |        |                   |
| CA_4A-12A<br>(0)(1)(2)(3)(4)(5) | Band 4      | Yes       | Yes   | Yes   | Yes    |        |        | 20 MHz            |
|                                 | Band 12     |           |       | Yes   | Yes    |        |        |                   |
|                                 | Band 4      | Yes       | Yes   | Yes   | Yes    | Yes    | Yes    | 30 MHz            |
|                                 | Band 12     |           |       | Yes   | Yes    |        |        |                   |
|                                 | Band 4      |           |       | Yes   | Yes    | Yes    | Yes    | 30 MHz            |
|                                 | Band 12     |           | Yes   | Yes   | Yes    |        |        |                   |
|                                 | Band 4      |           |       | Yes   | Yes    |        |        | 20 MHz            |
|                                 | Band 12     |           |       | Yes   | Yes    |        |        |                   |
|                                 | Band 4      |           |       | Yes   | Yes    | Yes    | Yes    | 30 MHz            |
|                                 | Band 12     |           |       | Yes   | Yes    |        |        |                   |
|                                 | Band 4      |           |       | Yes   | Yes    | Yes    |        | 20 MHz            |
|                                 | Band 12     |           |       | Yes   |        |        |        |                   |

**DL Inter-Band (2CC Max) (Continued)**

| E-UTRA CA configuration (BCS) | E-UTRA Band | Bandwidth |       |       |        |        |        | Max Aggregated BW |
|-------------------------------|-------------|-----------|-------|-------|--------|--------|--------|-------------------|
|                               |             | 1.4 MHz   | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz |                   |
| CA_4A-13A (0)(1)              | Band 4      |           |       | Yes   | Yes    | Yes    | Yes    | 30 MHz            |
|                               | Band 13     |           |       |       | Yes    |        |        |                   |
|                               | Band 4      |           |       | Yes   | Yes    |        |        | 20 MHz            |
|                               | Band 13     |           |       |       | Yes    |        |        |                   |
| CA_4A-17A (0)                 | Band 4      |           |       | Yes   | Yes    |        |        | 20 MHz            |
|                               | Band 17     |           |       | Yes   | Yes    |        |        |                   |
| CA_5A-41A (0)                 | Band 5      |           |       | Yes   | Yes    |        |        | 30 MHz            |
|                               | Band 41     |           |       |       |        |        | Yes    |                   |
| CA_5A-66A (0)                 | Band 5      |           |       | Yes   | Yes    |        |        | 30 MHz            |
|                               | Band 66     |           |       | Yes   | Yes    | Yes    | Yes    |                   |
| CA_12A-66A (0)(1)(2)(3)(4)(5) | Band 12     |           |       | Yes   | Yes    |        |        | 20 MHz            |
|                               | Band 66     | Yes       | Yes   | Yes   | Yes    |        |        |                   |
|                               | Band 12     |           |       | Yes   | Yes    |        |        | 30 MHz            |
|                               | Band 66     | Yes       | Yes   | Yes   | Yes    | Yes    | Yes    |                   |
|                               | Band 12     |           | Yes   | Yes   | Yes    |        |        | 30 MHz            |
|                               | Band 66     |           |       | Yes   | Yes    | Yes    | Yes    |                   |
|                               | Band 12     |           |       | Yes   | Yes    |        |        | 20 MHz            |
|                               | Band 66     |           |       | Yes   | Yes    |        |        |                   |
|                               | Band 12     |           |       | Yes   | Yes    |        |        | 30 MHz            |
|                               | Band 66     |           |       | Yes   | Yes    | Yes    | Yes    |                   |
|                               | Band 12     |           |       | Yes   |        |        |        | 20 MHz            |
|                               | Band 66     |           |       | Yes   | Yes    | Yes    |        |                   |
| CA_26A-41A (0)                | Band 26     |           |       | Yes   | Yes    | Yes    |        | 35 MHz            |
|                               | Band 41     |           |       | Yes   | Yes    | Yes    | Yes    |                   |

**DL Inter-Band (3CC Max)**

| E-UTRA CA configuration (BCS) | E-UTRA Band | Bandwidth          |       |       |        |        |        | Max Aggregated BW |
|-------------------------------|-------------|--------------------|-------|-------|--------|--------|--------|-------------------|
|                               |             | 1.4 MHz            | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz |                   |
| CA_2A-4A-5A (0)               | Band 2      |                    |       | Yes   | Yes    | Yes    | Yes    | 50 MHz            |
|                               | Band 4      |                    |       | Yes   | Yes    | Yes    | Yes    |                   |
|                               | Band 5      |                    |       | Yes   | Yes    |        |        |                   |
| CA_2A-4A-13A (0)              | Band 2      |                    |       | Yes   | Yes    | Yes    | Yes    | 50 MHz            |
|                               | Band 4      |                    |       | Yes   | Yes    | Yes    | Yes    |                   |
|                               | Band 13     |                    |       |       | Yes    |        |        |                   |
| CA_4A-4A-12A (0)              | Band 4      | See CA_4A-4A (0)   |       |       |        |        |        | 50 MHz            |
|                               | Band 12     |                    |       | Yes   | Yes    |        |        |                   |
| CA_4A-4A-17A (0)              | Band 4      | See CA_4A-4A (0)   |       |       |        |        |        | 50 MHz            |
|                               | Band 17     |                    |       |       | Yes    |        |        |                   |
| CA_12A-66A-66A (0)            | Band 12     |                    |       | Yes   | Yes    |        |        | 50 MHz            |
|                               | Band 66     | See CA_66A-66A (0) |       |       |        |        |        |                   |
| CA_5A-66A-66A (0)             | Band 5      |                    |       | Yes   | Yes    |        |        | 50 MHz            |
|                               | Band 66     | See CA_66A-66A (0) |       |       |        |        |        |                   |
| CA_26A-41C (0)                | Band 26     |                    |       | Yes   | Yes    | Yes    |        | 55 MHz            |
|                               | Band 41     | See CA_41C (1)     |       |       |        |        |        |                   |

**DL Intra-Band (Non-Contiguous)**

| E-UTRA CA configuration<br>(BCS) | E-UTRA Band | Allowed Channel BW Per Carrier (MHz) |                |                |             | Max Aggregated<br>BW |
|----------------------------------|-------------|--------------------------------------|----------------|----------------|-------------|----------------------|
|                                  |             | 1st Carrier                          | 2nd Carrier    | 3rd Carrier    | 4th Carrier |                      |
| CA_2A-2A (0)                     | Band 2      | 5,10,15,20                           | 5,10,15,20     |                |             | 40 MHz               |
| CA_4A-4A<br>(0),(1)              | Band 4      | 5,10,15,20                           | 5,10,15,20     |                |             | 40 MHz               |
|                                  | Band 4      | 5,10                                 | 5,10           |                |             | 20 MHz               |
| CA_41A-41A<br>(0),(1)            | Band 41     | 10,15,20                             | 10,15,20       |                |             | 40 MHz               |
|                                  | Band 41     | 5,10,15,20                           | 5,10,15,20     |                |             | 40 MHz               |
| CA_66A-66A (0)                   | Band 66     | 5,10,15,20                           | 5,10,15,20     |                |             | 40 MHz               |
| CA_41A-41C (0)                   | Band 41     | 5,10,15,20                           | See CA_41C (1) |                |             | 60 MHz               |
|                                  |             | See CA_41C (1)                       |                | 5,10,15,20     |             |                      |
| CA_41C-41C (0)                   | Band 41     | See CA_41C (0)                       |                | See CA_41C (0) |             | 80 MHz               |
|                                  | Band 41     | See CA_41C (0)                       |                | See CA_41C (0) |             |                      |
| CA_41A-41D (0)                   | Band 41     | 5,10,15,20                           | See CA_41D (0) |                |             | 80 MHz               |
|                                  | Band 41     | See CA_41D (0)                       |                |                | 5,10,15,20  |                      |

**DL Intra-Band (Contiguous)**

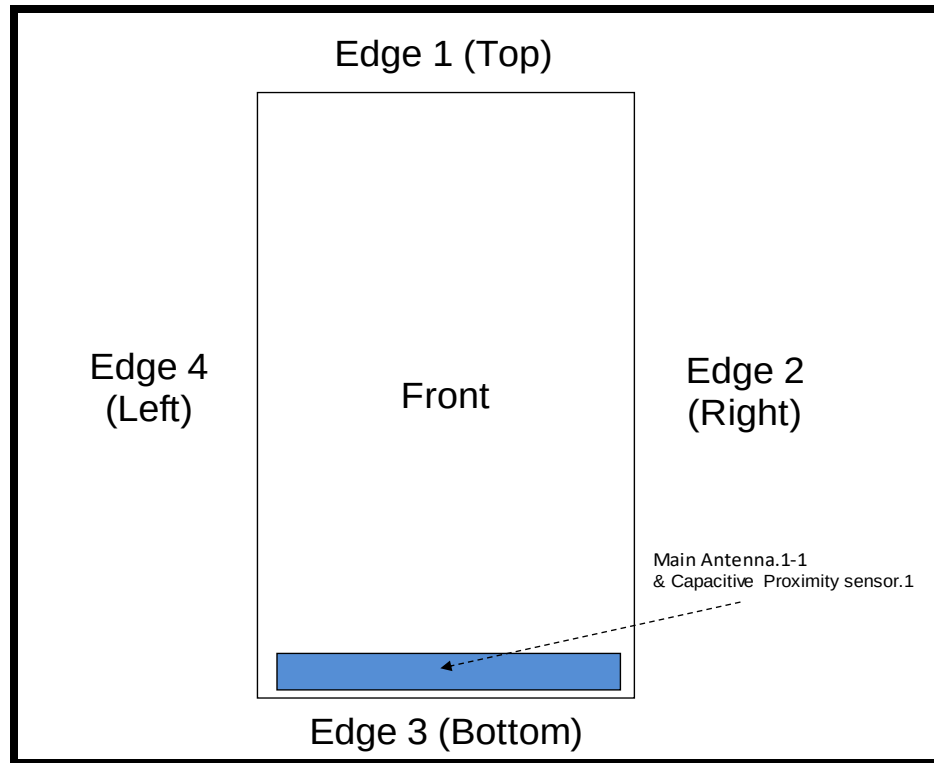
| E-UTRA CA configuration (BCS) | E-UTRA Band | Allowed Channel BW Per Carrier (MHz) |             |             |             | Max Aggregated BW |
|-------------------------------|-------------|--------------------------------------|-------------|-------------|-------------|-------------------|
|                               |             | 1st Carrier                          | 2nd Carrier | 3rd Carrier | 4th Carrier |                   |
| CA_2C (0)                     | Band 2      | 5                                    | 20          |             |             | 40 MHz            |
|                               |             | 10                                   | 15,20       |             |             |                   |
|                               |             | 15                                   | 10,15,20    |             |             |                   |
|                               |             | 20                                   | 5,10,15,20  |             |             |                   |
| CA_41C (0),(1),(2),(3)        | Band 41     | 10                                   | 20          |             |             | 40 MHz            |
|                               |             | 15                                   | 15,20       |             |             |                   |
|                               |             | 20                                   | 10,15,20    |             |             |                   |
|                               | Band 41     | 5,10                                 | 20          |             |             | 40 MHz            |
|                               |             | 15                                   | 15,20       |             |             |                   |
|                               |             | 20                                   | 5,10,15,20  |             |             |                   |
|                               | Band 41     | 10                                   | 15,20       |             |             | 40 MHz            |
|                               |             | 15                                   | 10,15,20    |             |             |                   |
|                               |             | 20                                   | 10,15,20    |             |             |                   |
|                               | Band 41     | 10                                   | 20          |             |             | 40 MHz            |
|                               |             | 20                                   | 20          |             |             |                   |
| CA_66B (0)                    | Band 66     | 5                                    | 5,10,15     |             |             | 20 MHz            |
|                               |             | 10                                   | 5,10        |             |             |                   |
|                               |             | 15                                   | 5           |             |             |                   |
| CA_66C (0)                    | Band 66     | 5                                    | 20          |             |             | 40 MHz            |
|                               |             | 10                                   | 15,20       |             |             |                   |
|                               |             | 15                                   | 10,15,20    |             |             |                   |
|                               |             | 20                                   | 5,10,15,20  |             |             |                   |
| CA_41D (0)                    | Band 41     | 10                                   | 20          | 15          |             | 60 MHz            |
|                               |             | 10                                   | 15,20       | 20          |             |                   |
|                               |             | 15                                   | 20          | 10,15       |             |                   |
|                               |             | 15                                   | 10,15,20    | 20          |             |                   |
|                               |             | 20                                   | 15,20       | 10          |             |                   |
|                               |             | 20                                   | 10,15,20    | 15,20       |             |                   |

**Note(s):**

1. For supported channels, please refer to §6.4.
2. This device supports DL 4X4 MIMO for LTE Band 4, 66. Please refer to Sec.9.3.1 for detailed LTE CA combination with 4X4 DL MIMO.

## 6.7. Proximity Sensor feature

The DUT has a proximity sensor to reduce the output power. The position of the sensor and antenna are as shown in the graphic.



### Notes:

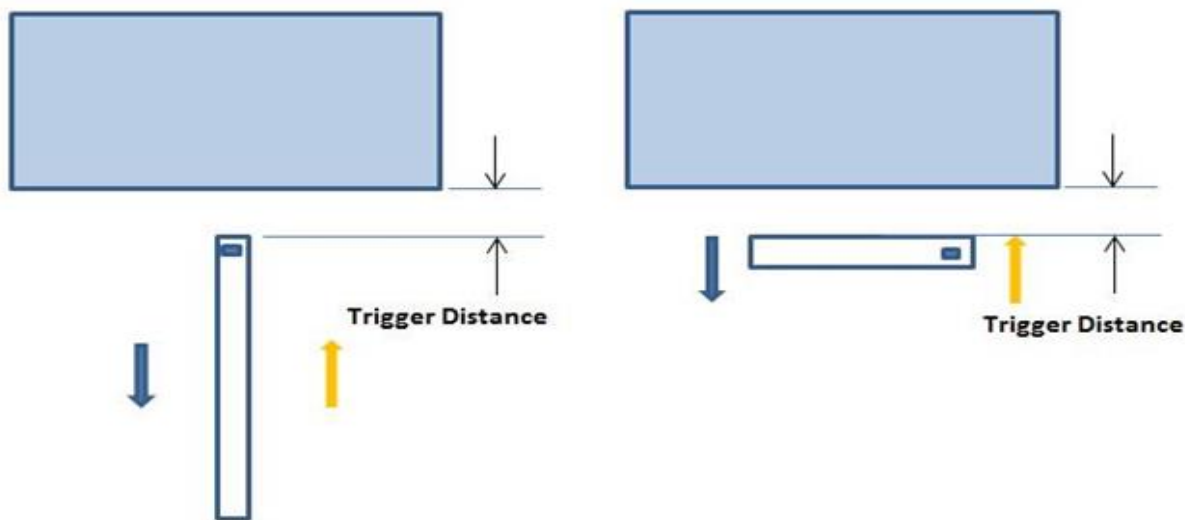
1. Proximity sensor.1 is related to only Main Antenna.1-1.

### 6.7.1. Proximity Sensor Triggering Distance (KDB 616217 §6.2)

Rear, Front and Edge 3 of the DUT was placed directly below the flat phantom. The DUT was moved toward the phantom in accordance with the steps outlined in KDB 616217 §6.2 to determine the trigger distance for enabling power reduction. The DUT was moved away from the phantom to determine the trigger distance for resuming full power.

The DUT featured a visual indicator on its display that showed the status of the proximity sensor (Triggered or not triggered). This was used to determine the status of the sensor during the proximity sensor assessment as monitoring the output power directly was not practical without affecting the measurement.

It was confirmed separately that the output power was altered according to the proximity sensor status indication. This was achieved by observing the proximity sensor status at the same time as monitoring the conducted power. Section 9 contains both the full and reduced conducted power measurements.



Proximity Sensor Trigger Distance Assessment  
KDB 616217 §6.2, Edge 3

Proximity Sensor Trigger Distance Assessment  
KDB 616217 §6.2, Rear, Front

#### LEGEND

- Direction of DUT travel for determination of power reduction triggering point
- Direction of DUT travel for determination of full power resumption triggering point

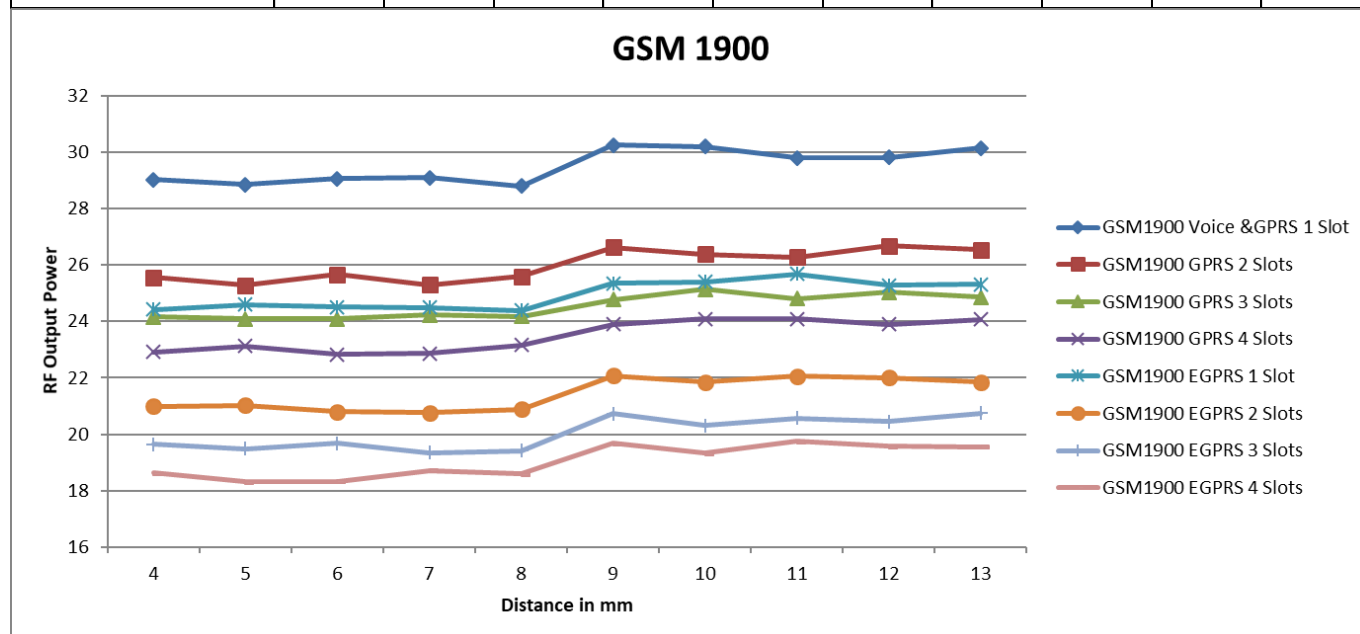
#### Summary of Trigger Distances

| Tissue<br>simulating<br>liquid | Antenna      | Trigger distance - Front    |                           | Trigger distance - Rear     |                           | Trigger distance – Edge 3   |                           |
|--------------------------------|--------------|-----------------------------|---------------------------|-----------------------------|---------------------------|-----------------------------|---------------------------|
|                                |              | Moving<br>toward<br>phantom | Moving<br>from<br>phantom | Moving<br>toward<br>phantom | Moving<br>from<br>phantom | Moving<br>toward<br>phantom | Moving<br>from<br>phantom |
| 1750 Head                      | Main Ant.1-1 | 8 mm                        | 8 mm                      | 8 mm                        | 8 mm                      | 14 mm                       | 14 mm                     |
| 1900 Head                      | Main Ant.1-1 | 8 mm                        | 8 mm                      | 8 mm                        | 8 mm                      | 14 mm                       | 14 mm                     |

**Proximity Sensor Triggering Distance Measurement Results****GSM 1900**

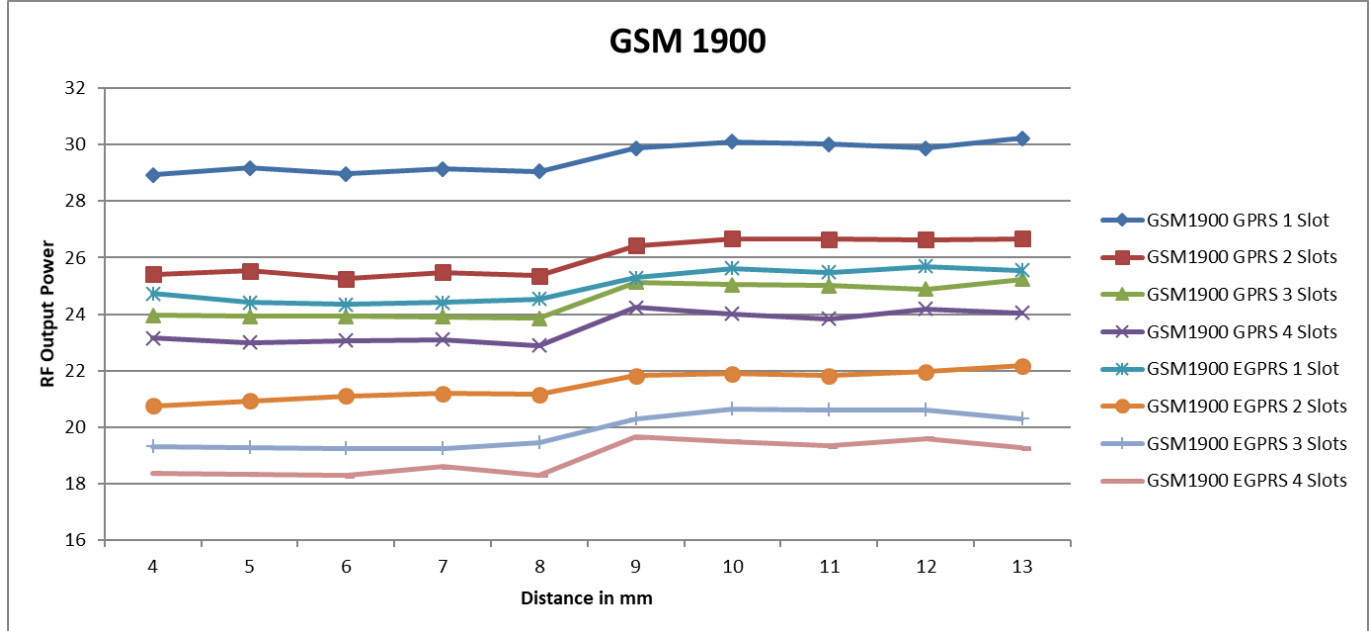
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

| Distance to DUT vs. Output Power in dBm |      |      |      |      |      |      |      |      |      |      |
|-----------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Distance (mm)                           | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   |
| 1900 Voice &GPRS 1 Slot                 | 29.0 | 28.8 | 29.1 | 29.1 | 28.8 | 30.3 | 30.2 | 29.8 | 29.8 | 30.1 |
| GSM1900 GPRS 2 Slots                    | 25.6 | 25.3 | 25.7 | 25.3 | 25.6 | 26.6 | 26.4 | 26.3 | 26.7 | 26.5 |
| GSM1900 GPRS 3 Slots                    | 24.2 | 24.1 | 24.1 | 24.2 | 24.2 | 24.8 | 25.1 | 24.8 | 25.0 | 24.9 |
| GSM1900 GPRS 4 Slots                    | 22.9 | 23.1 | 22.8 | 22.9 | 23.2 | 23.9 | 24.1 | 24.1 | 23.9 | 24.1 |
| GSM1900 EGPRS 1 Slot                    | 24.4 | 24.6 | 24.5 | 24.5 | 24.4 | 25.3 | 25.4 | 25.7 | 25.3 | 25.3 |
| GSM1900 EGPRS 2 Slots                   | 21.0 | 21.0 | 20.8 | 20.8 | 20.9 | 22.1 | 21.8 | 22.1 | 22.0 | 21.9 |
| GSM1900 EGPRS 3 Slots                   | 19.7 | 19.5 | 19.7 | 19.4 | 19.4 | 20.7 | 20.3 | 20.6 | 20.4 | 20.8 |
| GSM1900 EGPRS 4 Slots                   | 18.6 | 18.3 | 18.3 | 18.7 | 18.6 | 19.7 | 19.3 | 19.8 | 19.6 | 19.6 |



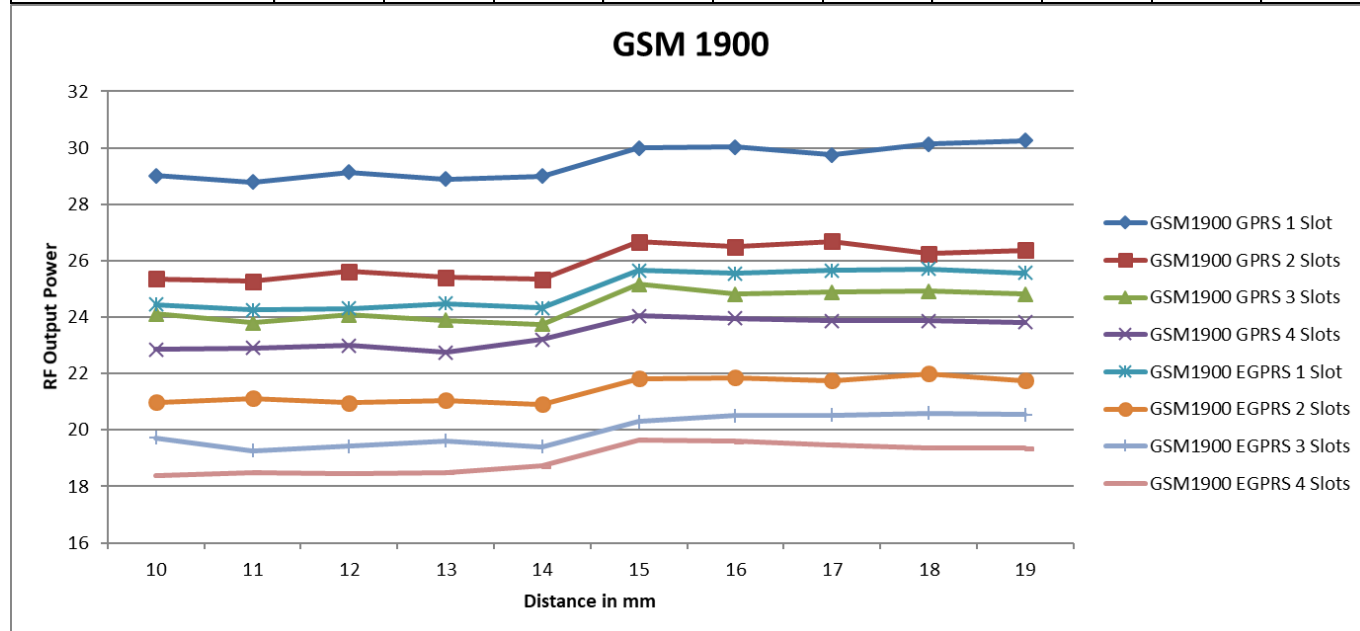
## Front, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

| Distance to DUT vs. Output Power in dBm |      |      |      |      |      |      |      |      |      |      |
|-----------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Distance (mm)                           | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   |
| GSM1900 GPRS 1 Slot                     | 28.9 | 29.2 | 29.0 | 29.1 | 29.1 | 29.9 | 30.1 | 30.0 | 29.9 | 30.2 |
| GSM1900 GPRS 2 Slots                    | 25.4 | 25.5 | 25.3 | 25.5 | 25.4 | 26.4 | 26.7 | 26.7 | 26.6 | 26.7 |
| GSM1900 GPRS 3 Slots                    | 24.0 | 23.9 | 23.9 | 23.9 | 23.9 | 25.1 | 25.0 | 25.0 | 24.9 | 25.2 |
| GSM1900 GPRS 4 Slots                    | 23.2 | 23.0 | 23.1 | 23.1 | 22.9 | 24.2 | 24.0 | 23.8 | 24.2 | 24.1 |
| GSM1900 EGPRS 1 Slot                    | 24.7 | 24.4 | 24.4 | 24.4 | 24.5 | 25.3 | 25.6 | 25.5 | 25.7 | 25.6 |
| GSM1900 EGPRS 2 Slots                   | 20.8 | 20.9 | 21.1 | 21.2 | 21.2 | 21.8 | 21.9 | 21.8 | 22.0 | 22.2 |
| GSM1900 EGPRS 3 Slots                   | 19.3 | 19.3 | 19.3 | 19.3 | 19.5 | 20.3 | 20.7 | 20.6 | 20.6 | 20.3 |
| GSM1900 EGPRS 4 Slots                   | 18.4 | 18.4 | 18.3 | 18.6 | 18.3 | 19.7 | 19.5 | 19.3 | 19.6 | 19.3 |



## Edge 3, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

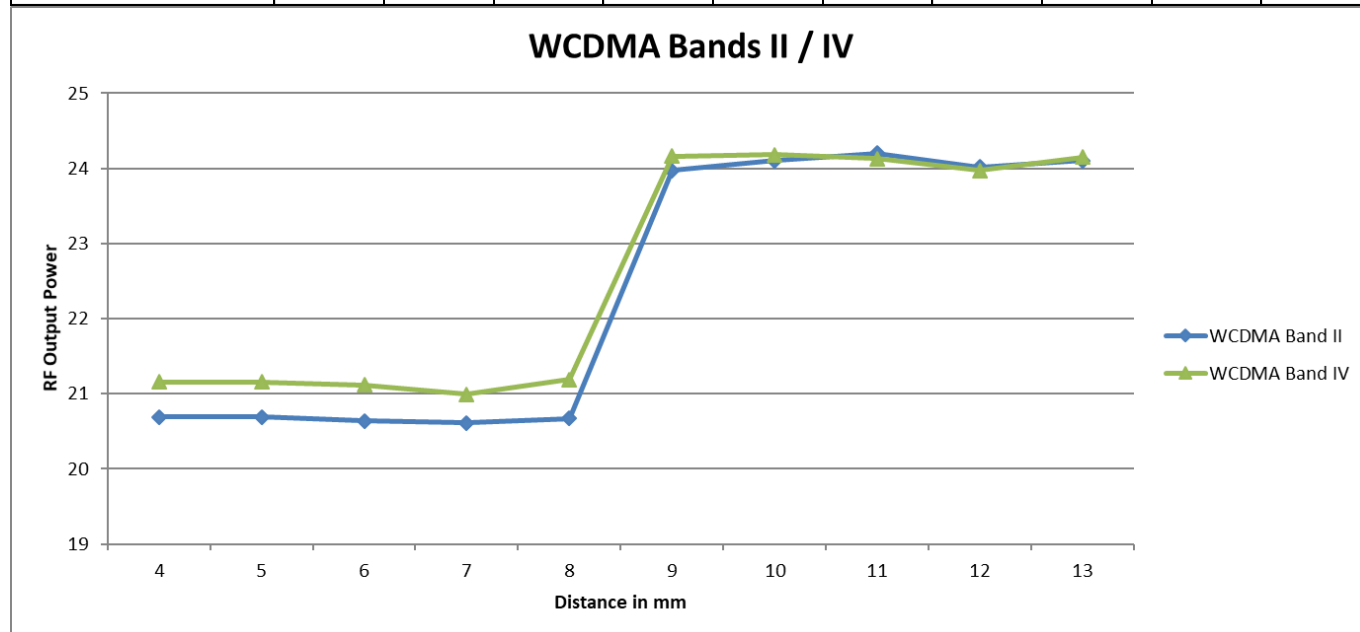
| Distance to DUT vs. Output Power in dBm |      |      |      |      |      |      |      |      |      |      |
|-----------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Distance (mm)                           | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   |
| GSM1900 GPRS 1 Slot                     | 29.0 | 28.8 | 29.1 | 28.9 | 29.0 | 30.0 | 30.0 | 29.8 | 30.1 | 30.3 |
| GSM1900 GPRS 2 Slots                    | 25.4 | 25.3 | 25.6 | 25.4 | 25.3 | 26.7 | 26.5 | 26.7 | 26.3 | 26.4 |
| GSM1900 GPRS 3 Slots                    | 24.1 | 23.8 | 24.1 | 23.9 | 23.8 | 25.2 | 24.8 | 24.9 | 24.9 | 24.8 |
| GSM1900 GPRS 4 Slots                    | 22.9 | 22.9 | 23.0 | 22.8 | 23.2 | 24.1 | 24.0 | 23.9 | 23.9 | 23.8 |
| GSM1900 EGPRS 1 Slot                    | 24.5 | 24.3 | 24.3 | 24.5 | 24.3 | 25.7 | 25.6 | 25.7 | 25.7 | 25.6 |
| GSM1900 EGPRS 2 Slots                   | 21.0 | 21.1 | 21.0 | 21.1 | 20.9 | 21.8 | 21.9 | 21.8 | 22.0 | 21.8 |
| GSM1900 EGPRS 3 Slots                   | 19.7 | 19.3 | 19.4 | 19.6 | 19.4 | 20.3 | 20.5 | 20.5 | 20.6 | 20.5 |
| GSM1900 EGPRS 4 Slots                   | 18.4 | 18.5 | 18.5 | 18.5 | 18.7 | 19.7 | 19.6 | 19.5 | 19.4 | 19.4 |



**WCDMA Bands II / IV**

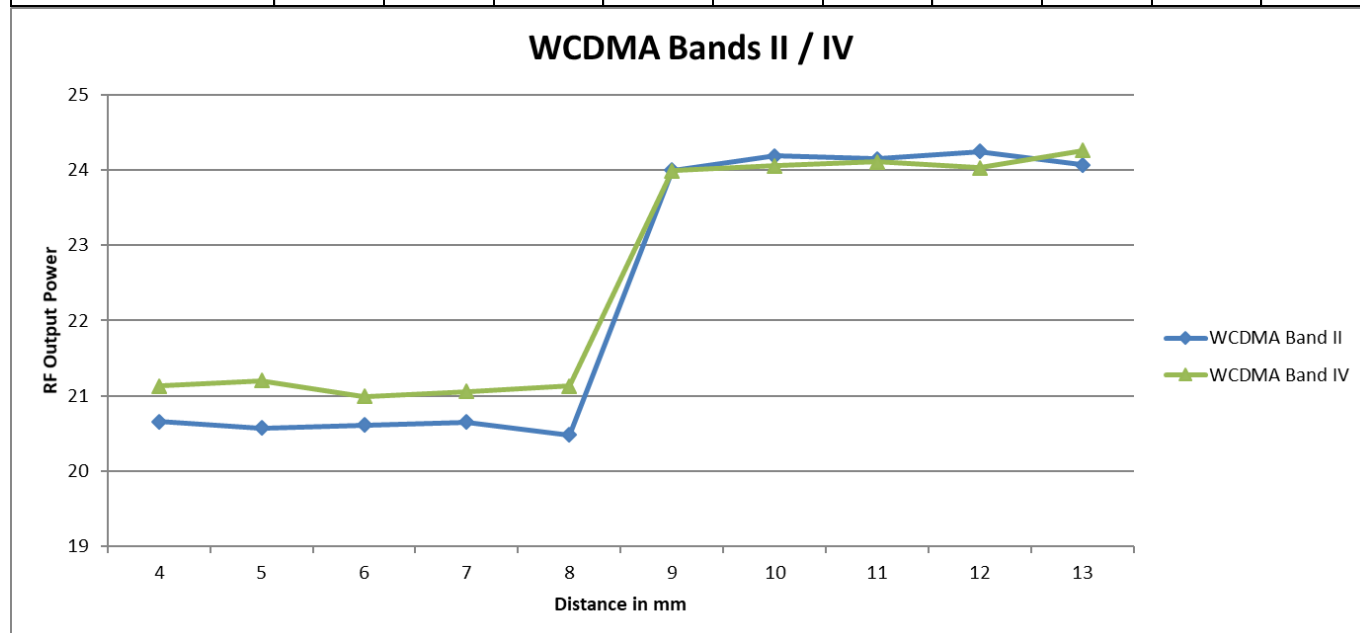
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

| Distance to DUT vs. Output Power in dBm |      |      |      |      |      |      |      |      |      |      |
|-----------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Distance (mm)                           | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   |
| WCDMA Band II                           | 20.7 | 20.7 | 20.6 | 20.6 | 20.7 | 24.0 | 24.1 | 24.2 | 24.0 | 24.1 |
| WCDMA Band IV                           | 21.2 | 21.2 | 21.1 | 21.0 | 21.2 | 24.2 | 24.2 | 24.1 | 24.0 | 24.2 |



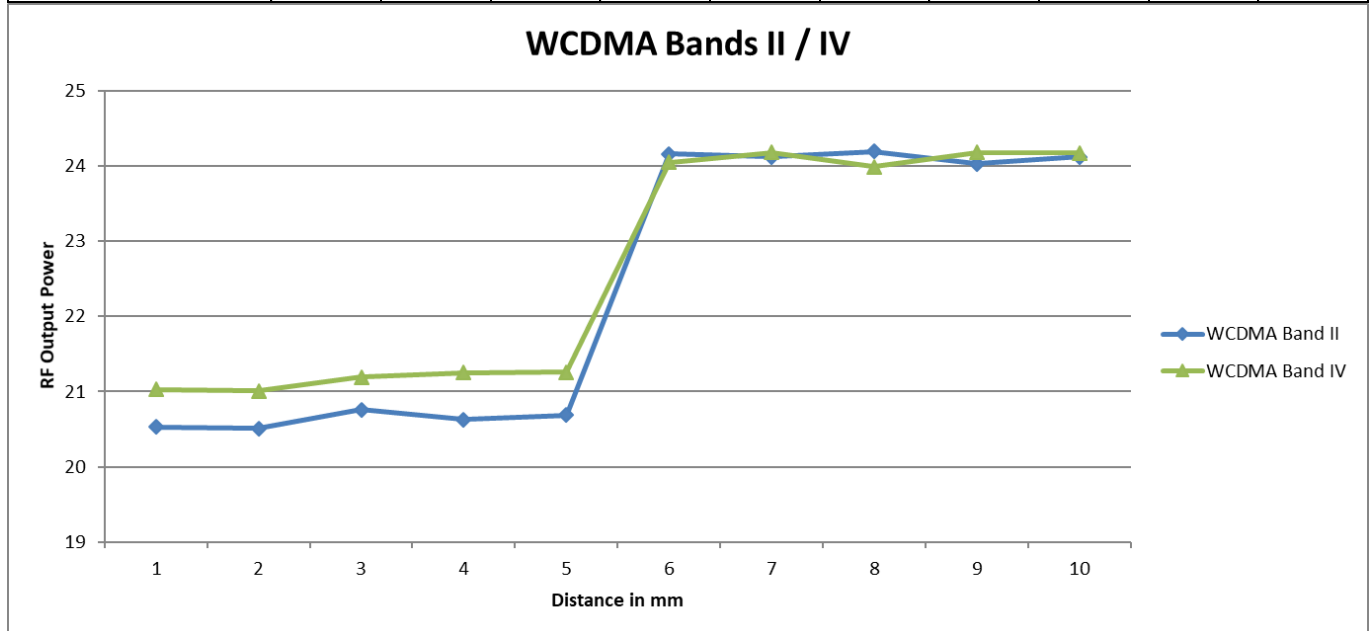
Front, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

| Distance to DUT vs. Output Power in dBm |      |      |      |      |      |      |      |      |      |      |
|-----------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Distance (mm)                           | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   |
| WCDMA Band II                           | 20.7 | 20.6 | 20.6 | 20.7 | 20.5 | 24.0 | 24.2 | 24.2 | 24.3 | 24.1 |
| WCDMA Band IV                           | 21.1 | 21.2 | 21.0 | 21.1 | 21.1 | 24.0 | 24.1 | 24.1 | 24.0 | 24.3 |



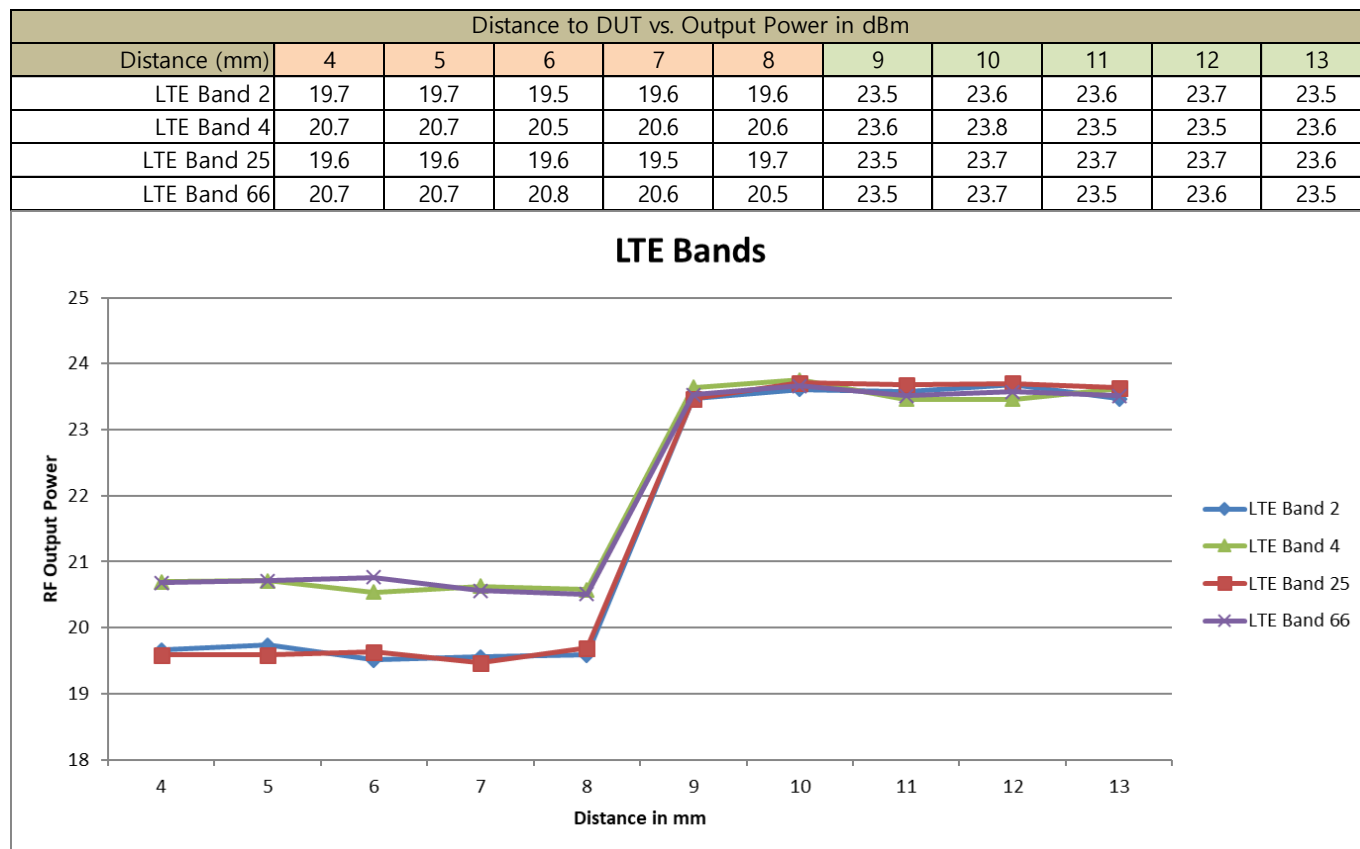
## Edge 3, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

| Distance to DUT vs. Output Power in dBm |      |      |      |      |      |      |      |      |      |      |
|-----------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Distance (mm)                           | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   |
| WCDMA Band II                           | 20.5 | 20.5 | 20.8 | 20.6 | 20.7 | 24.2 | 24.1 | 24.2 | 24.0 | 24.1 |
| WCDMA Band IV                           | 21.0 | 21.0 | 21.2 | 21.3 | 21.3 | 24.1 | 24.2 | 24.0 | 24.2 | 24.2 |

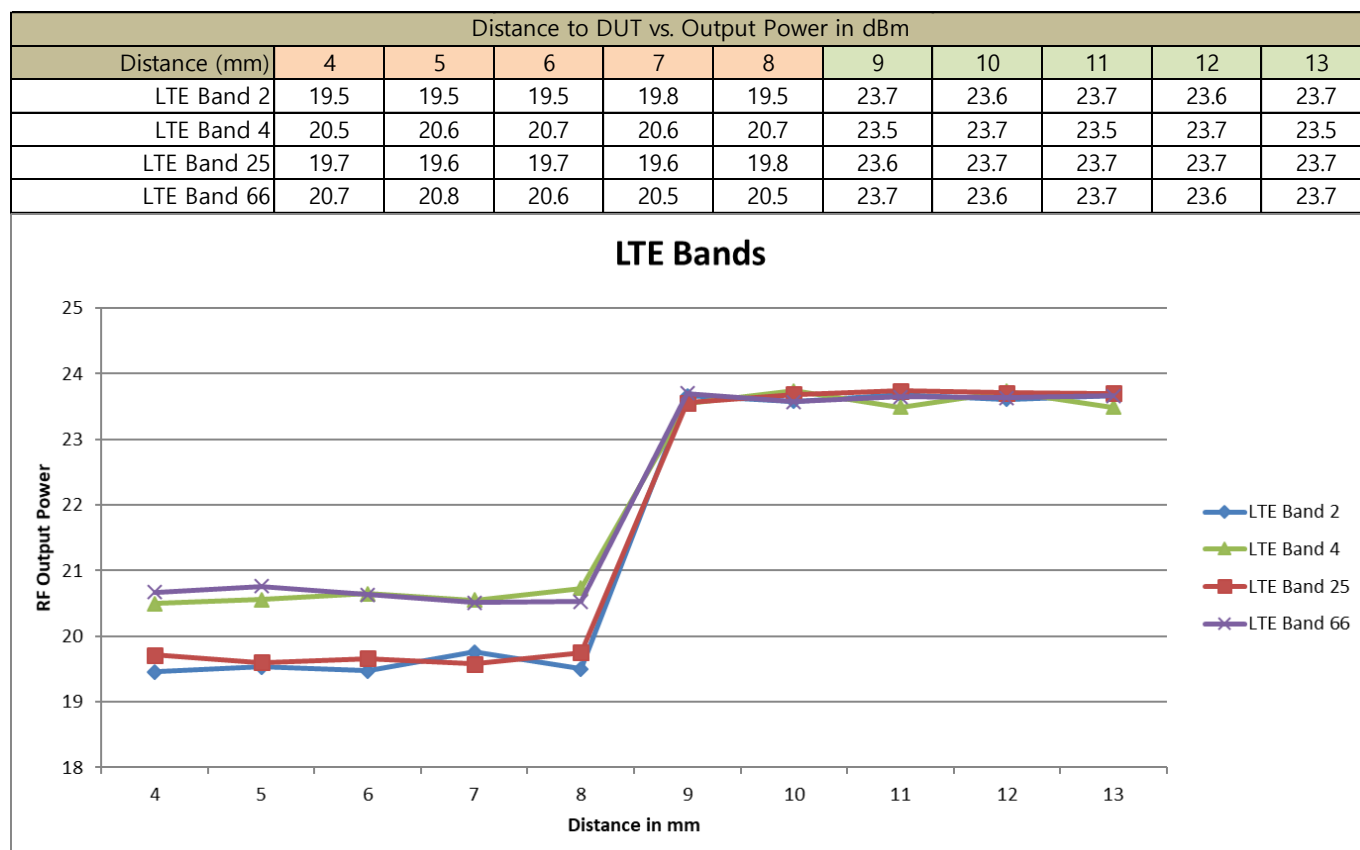


**LTE Bands 2 / 4 / 25 / 66 (Main Ant.1-1)**

Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

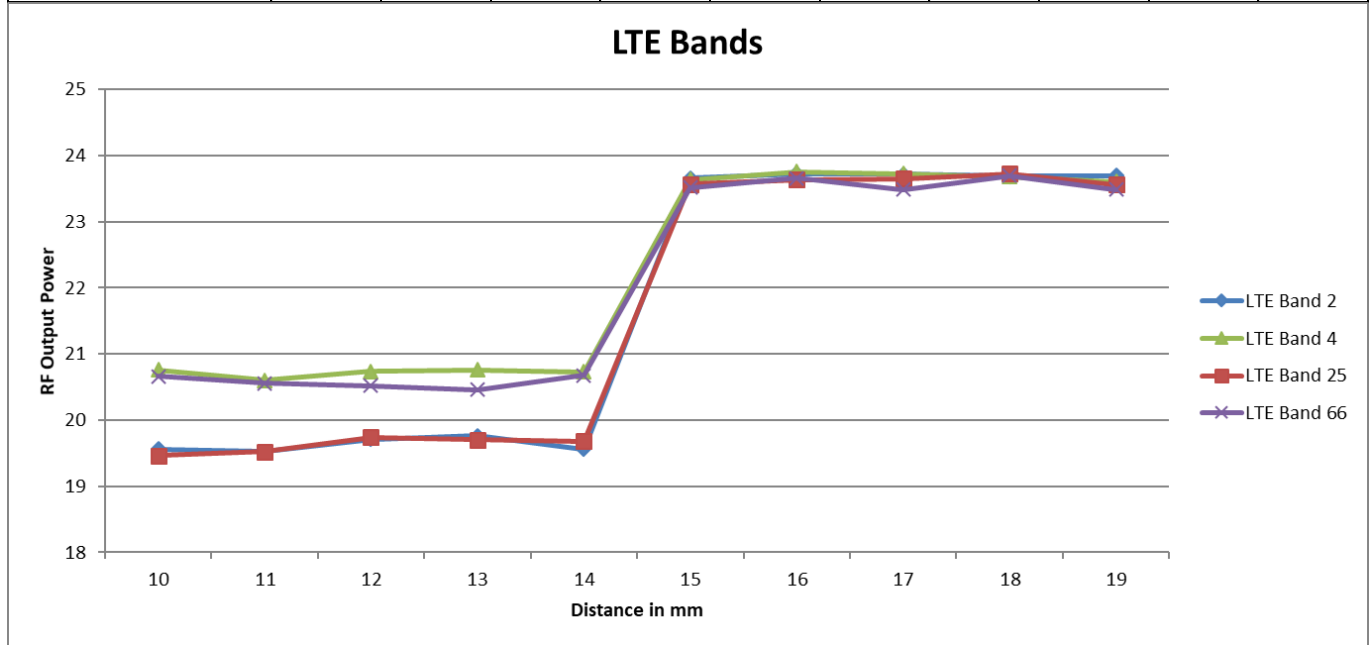


Front, DUT Moving Toward (Trigger) and Away (Release) from the Phantom



## Edge 3, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

| Distance to DUT vs. Output Power in dBm |      |      |      |      |      |      |      |      |      |      |
|-----------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Distance (mm)                           | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   |
| LTE Band 2                              | 19.6 | 19.5 | 19.7 | 19.8 | 19.6 | 23.7 | 23.7 | 23.7 | 23.7 | 23.7 |
| LTE Band 4                              | 20.8 | 20.6 | 20.7 | 20.8 | 20.7 | 23.6 | 23.8 | 23.7 | 23.7 | 23.6 |
| LTE Band 25                             | 19.5 | 19.5 | 19.7 | 19.7 | 19.7 | 23.6 | 23.6 | 23.7 | 23.7 | 23.6 |
| LTE Band 66                             | 20.7 | 20.6 | 20.5 | 20.5 | 20.7 | 23.5 | 23.7 | 23.5 | 23.7 | 23.5 |



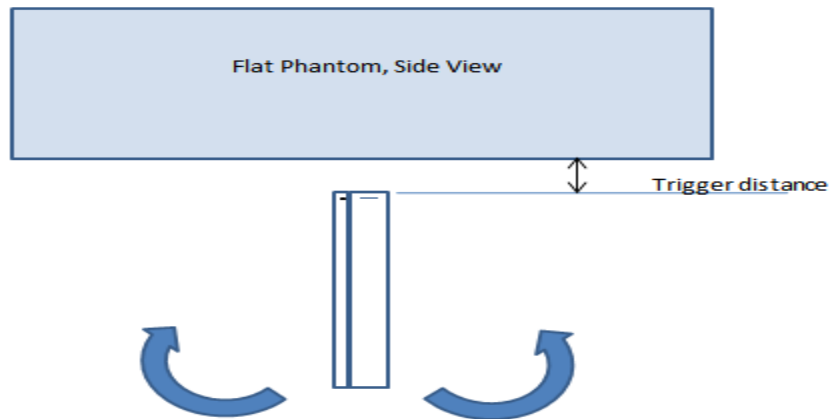
### 6.7.2. Proximity Sensor Coverage (KDB 616217 §6.3)

As there is no spatial offset between the antenna and the proximity sensor element, proximity sensor coverage did not need to be assessed.

### 6.7.3. Proximity Sensor Tilt Angle Assessment (KDB 616217 §6.4)

The DUT was positioned directly below the flat phantom at the minimum measured trigger distance with Edge 3 parallel to the base of the flat phantom for each band.

The EUT was rotated about Edge 3 for angles up to  $\pm 45^\circ$ . If the output power increased during the rotation the DUT was moved 1mm toward the phantom and the rotation repeated. This procedure was repeated until the power remained reduced for all angles up to  $\pm 45^\circ$ .



Proximity sensor tilt angle assessment (Edge 3) KDB 616217 §6.4

#### Summary of Tablet Tilt Angle Influence to Proximity Sensor Triggering (Edge 3)

| Band (MHz) | Minimum trigger distance measured according to KDB 616217 §6.2 | Minimum distance at which power reduction was maintained over $\pm 45^\circ$ | Power reduction status |      |      |      |      |    |     |     |     |     |     |
|------------|----------------------------------------------------------------|------------------------------------------------------------------------------|------------------------|------|------|------|------|----|-----|-----|-----|-----|-----|
|            |                                                                |                                                                              | -45°                   | -40° | -30° | -20° | -10° | 0° | 10° | 20° | 30° | 40° | 45° |
| 1750       | 14 mm                                                          | 14 mm                                                                        | On                     | On   | On   | On   | On   | On | On  | On  | On  | On  | On  |
| 1900       | 14 mm                                                          | 14 mm                                                                        | On                     | On   | On   | On   | On   | On | On  | On  | On  | On  | On  |

### 6.7.4. Resulting test positions for SAR measurements

| Wireless technologies | DUT Position | §6.2 Triggering Distance | §6.3 Coverage | §6.4 Tilt Angle | Worst case distance for SAR |
|-----------------------|--------------|--------------------------|---------------|-----------------|-----------------------------|
| WWAN (Main Ant.1-1)   | Rear         | 8 mm                     | N/A           | N/A             | 7 mm                        |
|                       | Front        | 8 mm                     | N/A           | N/A             | 7 mm                        |
|                       | Edge 3       | 14 mm                    | N/A           | 14 mm           | 13 mm                       |

## 7. RF Exposure Conditions (Test Configurations)

Refer to Appendix A for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.

| Wireless technologies | RF Exposure Conditions | Antennaa                     | DUT-to-User Separation | Test Position    | Antenna-to-edge/surface | SAR Required | Note |
|-----------------------|------------------------|------------------------------|------------------------|------------------|-------------------------|--------------|------|
| WWAN                  | Head                   | Main Ant. 1-1 & 1-2          | 0 mm                   | Left Touch       | N/A                     | Yes          |      |
|                       |                        |                              |                        | Left Tilt (15°)  | N/A                     | Yes          |      |
|                       |                        |                              |                        | Right Touch      | N/A                     | Yes          |      |
|                       |                        |                              |                        | Right Tilt (15°) | N/A                     | Yes          |      |
|                       | Body                   | Main Ant. 1-1 & 1-2          | 15 mm                  | Rear             | N/A                     | Yes          |      |
|                       |                        |                              |                        | Front            | N/A                     | Yes          |      |
|                       | Hotspot                | Main Ant.1-1                 | 10 mm                  | Rear             | < 25 mm                 | Yes          |      |
|                       |                        |                              |                        | Front            | < 25 mm                 | Yes          |      |
|                       |                        |                              |                        | Edge 1 (Top)     | > 25 mm                 | No           | 1    |
|                       |                        |                              |                        | Edge 2 (Right)   | < 25 mm                 | Yes          |      |
|                       |                        |                              |                        | Edge 3 (Bottom)  | < 25 mm                 | Yes          |      |
|                       |                        |                              |                        | Edge 4 (Left)    | < 25 mm                 | Yes          |      |
|                       | Hotspot                | Main Ant.1-2                 | 10 mm                  | Rear             | < 25 mm                 | Yes          |      |
|                       |                        |                              |                        | Front            | < 25 mm                 | Yes          |      |
|                       |                        |                              |                        | Edge 1 (Top)     | > 25 mm                 | No           | 1    |
|                       |                        |                              |                        | Edge 2 (Right)   | > 25 mm                 | No           | 1    |
|                       |                        |                              |                        | Edge 3 (Bottom)  | < 25 mm                 | Yes          |      |
|                       |                        |                              |                        | Edge 4 (Left)    | < 25 mm                 | Yes          |      |
|                       | Product Specific 10-g  | Main Ant.1-1 & Main Ant. 1-2 | 0 mm                   | Rear             | Refer to notes 2 & 3    |              |      |
|                       |                        |                              |                        | Front            |                         |              |      |
|                       |                        |                              |                        | Edge 1 (Top)     |                         |              |      |
|                       |                        |                              |                        | Edge 2 (Right)   |                         |              |      |
|                       |                        |                              |                        | Edge 3 (Bottom)  |                         |              |      |
|                       |                        |                              |                        | Edge 4 (Left)    |                         |              |      |
| WLAN & BT             | Head                   | WiFi/BT Ant.1 & WiFi Ant.2   | 0 mm                   | Left Touch       | N/A                     | Yes          |      |
|                       |                        |                              |                        | Left Tilt (15°)  | N/A                     | Yes          |      |
|                       |                        |                              |                        | Right Touch      | N/A                     | Yes          |      |
|                       |                        |                              |                        | Right Tilt (15°) | N/A                     | Yes          |      |
|                       | Body                   |                              | 15 mm                  | Rear             | N/A                     | Yes          |      |
|                       |                        |                              |                        | Front            | N/A                     | Yes          |      |
|                       | Hotspot                |                              | 10 mm                  | Rear             | < 25 mm                 | Yes          |      |
|                       |                        |                              |                        | Front            | < 25 mm                 | Yes          |      |
|                       |                        |                              |                        | Edge 1 (Top)     | < 25 mm                 | Yes          |      |
|                       |                        |                              |                        | Edge 2 (Right)   | > 25 mm                 | No           | 1    |
|                       |                        |                              |                        | Edge 3 (Bottom)  | > 25 mm                 | No           | 1    |
|                       |                        |                              |                        | Edge 4 (Left)    | < 25 mm                 | Yes          |      |
|                       | Product Specific 10-g  |                              | 0 mm                   | Rear             | Refer to notes 2 & 4    |              |      |
|                       |                        |                              |                        | Front            |                         |              |      |
|                       |                        |                              |                        | Edge 1 (Top)     |                         |              |      |
|                       |                        |                              |                        | Edge 2 (Right)   |                         |              |      |
|                       |                        |                              |                        | Edge 3 (Bottom)  |                         |              |      |
|                       |                        |                              |                        | Edge 4 (Left)    |                         |              |      |

### Notes:

- SAR is not required because the distance from the antenna to the edge is > 25 mm as per KDB 941225 D06 Hot Spot SAR.
- For Phablet devices: When hotspot mode applies, Product specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.
- For Phablet devices : When hotspot mode applies and power reduction applies to hotspot mode, Product specific 10-g SAR is required for each test position that has and adjusted SAR to maximum power that is > 1.2 W/kg.
- For Phablet devices: When hotspot mode is not supported, Product specific 10-g SAR is required for all surfaces and edges with an antenna located at ≤ 25mm from that surface or edge in direct contact with a flat phantom, to address interactive hand use exposure conditions.

## 8. Dielectric Property Measurements & System Check

### 8.1 Dielectric Property Measurements

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within  $\pm 2^\circ\text{C}$  of the temperature when the tissue parameters are characterized.

The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 3 – 4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series.

Tissue dielectric parameters were measured at the low, middle and high frequency of each operating frequency range of the test device.

#### Tissue Dielectric Parameters

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

| Target Frequency (MHz) | Head         |                | Body         |                |
|------------------------|--------------|----------------|--------------|----------------|
|                        | $\epsilon_r$ | $\sigma$ (S/m) | $\epsilon_r$ | $\sigma$ (S/m) |
| 150                    | 52.3         | 0.76           | 61.9         | 0.80           |
| 300                    | 45.3         | 0.87           | 58.2         | 0.92           |
| 450                    | 43.5         | 0.87           | 56.7         | 0.94           |
| 835                    | 41.5         | 0.90           | 55.2         | 0.97           |
| 900                    | 41.5         | 0.97           | 55.0         | 1.05           |
| 915                    | 41.5         | 0.98           | 55.0         | 1.06           |
| 1450                   | 40.5         | 1.20           | 54.0         | 1.30           |
| 1610                   | 40.3         | 1.29           | 53.8         | 1.40           |
| 1800 – 2000            | 40.0         | 1.40           | 53.3         | 1.52           |
| 2450                   | 39.2         | 1.80           | 52.7         | 1.95           |
| 3000                   | 38.5         | 2.40           | 52.0         | 2.73           |
| 5000                   | 36.2         | 4.45           | 49.3         | 5.07           |
| 5100                   | 36.1         | 4.55           | 49.1         | 5.18           |
| 5200                   | 36.0         | 4.66           | 49.0         | 5.30           |
| 5300                   | 35.9         | 4.76           | 48.9         | 5.42           |
| 5400                   | 35.8         | 4.86           | 48.7         | 5.53           |
| 5500                   | 35.6         | 4.96           | 48.6         | 5.65           |
| 5600                   | 35.5         | 5.07           | 48.5         | 5.77           |
| 5700                   | 35.4         | 5.17           | 48.3         | 5.88           |
| 5800                   | 35.3         | 5.27           | 48.2         | 6.00           |

SAR test were performed in all RF exposure conditions using Head tissue according to TCB workshop note in April, 2019.

#### IEEE Std 1528-2013

Refer to Table 3 within the IEEE Std 1528-2013

**Dielectric Property Measurements Results:****SAR 1 Room**

| Date       | Freq. (MHz) | Liquid Parameters |         | Measured                                | Target | Delta (%) | Limit ±(%) |   |
|------------|-------------|-------------------|---------|-----------------------------------------|--------|-----------|------------|---|
| 11-12-2019 | Head 835    | e'                | 41.8600 | Relative Permittivity ( $\epsilon_r$ ): | 41.86  | 41.50     | 0.87       | 5 |
|            |             | e''               | 19.0900 | Conductivity ( $\sigma$ ):              | 0.89   | 0.90      | -1.52      | 5 |
|            | Head 820    | e'                | 42.0100 | Relative Permittivity ( $\epsilon_r$ ): | 42.01  | 41.60     | 0.98       | 5 |
|            |             | e''               | 19.1200 | Conductivity ( $\sigma$ ):              | 0.87   | 0.90      | -2.97      | 5 |
|            | Head 850    | e'                | 41.7200 | Relative Permittivity ( $\epsilon_r$ ): | 41.72  | 41.50     | 0.53       | 5 |
|            |             | e''               | 19.1000 | Conductivity ( $\sigma$ ):              | 0.90   | 0.92      | -1.34      | 5 |
| 11-21-2019 | Head 5250   | e'                | 37.0800 | Relative Permittivity ( $\epsilon_r$ ): | 37.08  | 35.93     | 3.19       | 5 |
|            |             | e''               | 16.2600 | Conductivity ( $\sigma$ ):              | 4.75   | 4.70      | 0.94       | 5 |
|            | Head 5260   | e'                | 37.0600 | Relative Permittivity ( $\epsilon_r$ ): | 37.06  | 35.92     | 3.17       | 5 |
|            |             | e''               | 16.2700 | Conductivity ( $\sigma$ ):              | 4.76   | 4.71      | 0.98       | 5 |
|            | Head 5600   | e'                | 36.5600 | Relative Permittivity ( $\epsilon_r$ ): | 36.56  | 35.53     | 2.89       | 5 |
|            |             | e''               | 16.4600 | Conductivity ( $\sigma$ ):              | 5.13   | 5.06      | 1.28       | 5 |
|            | Head 5750   | e'                | 36.3600 | Relative Permittivity ( $\epsilon_r$ ): | 36.36  | 35.36     | 2.82       | 5 |
|            |             | e''               | 16.5300 | Conductivity ( $\sigma$ ):              | 5.28   | 5.21      | 1.37       | 5 |
|            | Head 5825   | e'                | 36.2100 | Relative Permittivity ( $\epsilon_r$ ): | 36.21  | 35.30     | 2.58       | 5 |
|            |             | e''               | 16.6000 | Conductivity ( $\sigma$ ):              | 5.38   | 5.27      | 2.02       | 5 |
| 12-03-2019 | Head 5250   | e'                | 37.1500 | Relative Permittivity ( $\epsilon_r$ ): | 37.15  | 35.93     | 3.39       | 5 |
|            |             | e''               | 16.5200 | Conductivity ( $\sigma$ ):              | 4.82   | 4.70      | 2.56       | 5 |
|            | Head 5260   | e'                | 37.1200 | Relative Permittivity ( $\epsilon_r$ ): | 37.12  | 35.92     | 3.34       | 5 |
|            |             | e''               | 16.5300 | Conductivity ( $\sigma$ ):              | 4.83   | 4.71      | 2.59       | 5 |
|            | Head 5600   | e'                | 36.6100 | Relative Permittivity ( $\epsilon_r$ ): | 36.61  | 35.53     | 3.03       | 5 |
|            |             | e''               | 16.6800 | Conductivity ( $\sigma$ ):              | 5.19   | 5.06      | 2.64       | 5 |
|            | Head 5750   | e'                | 36.4000 | Relative Permittivity ( $\epsilon_r$ ): | 36.40  | 35.36     | 2.93       | 5 |
|            |             | e''               | 16.7600 | Conductivity ( $\sigma$ ):              | 5.36   | 5.21      | 2.78       | 5 |
|            | Head 5825   | e'                | 36.2800 | Relative Permittivity ( $\epsilon_r$ ): | 36.28  | 35.30     | 2.78       | 5 |
|            |             | e''               | 16.7900 | Conductivity ( $\sigma$ ):              | 5.44   | 5.27      | 3.19       | 5 |
| 12-16-2019 | Head 835    | e'                | 42.1400 | Relative Permittivity ( $\epsilon_r$ ): | 42.14  | 41.50     | 1.54       | 5 |
|            |             | e''               | 19.2000 | Conductivity ( $\sigma$ ):              | 0.89   | 0.90      | -0.95      | 5 |
|            | Head 820    | e'                | 42.3000 | Relative Permittivity ( $\epsilon_r$ ): | 42.30  | 41.60     | 1.68       | 5 |
|            |             | e''               | 19.0600 | Conductivity ( $\sigma$ ):              | 0.87   | 0.90      | -3.28      | 5 |
|            | Head 850    | e'                | 42.0000 | Relative Permittivity ( $\epsilon_r$ ): | 42.00  | 41.50     | 1.20       | 5 |
|            |             | e''               | 19.1500 | Conductivity ( $\sigma$ ):              | 0.91   | 0.92      | -1.08      | 5 |

**SAR 2 Room**

| Date       | Freq. (MHz) | Liquid Parameters |         |                                         | Measured | Target | Delta (%) | Limit ±(%) |
|------------|-------------|-------------------|---------|-----------------------------------------|----------|--------|-----------|------------|
| 12-20-2019 | Head 835    | e'                | 42.2700 | Relative Permittivity ( $\epsilon_r$ ): | 42.27    | 41.50  | 1.86      | 5          |
|            |             | e''               | 19.8800 | Conductivity ( $\sigma$ ):              | 0.92     | 0.90   | 2.56      | 5          |
|            | Head 820    | e'                | 42.2900 | Relative Permittivity ( $\epsilon_r$ ): | 42.29    | 41.60  | 1.65      | 5          |
|            |             | e''               | 20.1200 | Conductivity ( $\sigma$ ):              | 0.92     | 0.90   | 2.10      | 5          |
|            | Head 850    | e'                | 42.2700 | Relative Permittivity ( $\epsilon_r$ ): | 42.27    | 41.50  | 1.86      | 5          |
|            |             | e''               | 19.6700 | Conductivity ( $\sigma$ ):              | 0.93     | 0.92   | 1.60      | 5          |
| 12-20-2019 | Head 1750   | e'                | 40.3400 | Relative Permittivity ( $\epsilon_r$ ): | 40.34    | 40.08  | 0.64      | 5          |
|            |             | e''               | 14.3400 | Conductivity ( $\sigma$ ):              | 1.40     | 1.37   | 1.93      | 5          |
|            | Head 1710   | e'                | 40.4000 | Relative Permittivity ( $\epsilon_r$ ): | 40.40    | 40.15  | 0.63      | 5          |
|            |             | e''               | 14.4100 | Conductivity ( $\sigma$ ):              | 1.37     | 1.35   | 1.76      | 5          |
|            | Head 1755   | e'                | 40.3300 | Relative Permittivity ( $\epsilon_r$ ): | 40.33    | 40.08  | 0.63      | 5          |
|            |             | e''               | 14.3300 | Conductivity ( $\sigma$ ):              | 1.40     | 1.37   | 1.94      | 5          |

**SAR 3 Room**

| Date       | Freq. (MHz) | Liquid Parameters |         |                                         | Measured | Target | Delta (%) | Limit ±(%) |
|------------|-------------|-------------------|---------|-----------------------------------------|----------|--------|-----------|------------|
| 11-11-2019 | Head 835    | e'                | 42.8200 | Relative Permittivity ( $\epsilon_r$ ): | 42.82    | 41.50  | 3.18      | 5          |
|            |             | e''               | 18.9500 | Conductivity ( $\sigma$ ):              | 0.88     | 0.90   | -2.24     | 5          |
|            | Head 820    | e'                | 42.8400 | Relative Permittivity ( $\epsilon_r$ ): | 42.84    | 41.60  | 2.97      | 5          |
|            |             | e''               | 19.2000 | Conductivity ( $\sigma$ ):              | 0.88     | 0.90   | -2.57     | 5          |
|            | Head 850    | e'                | 42.7900 | Relative Permittivity ( $\epsilon_r$ ): | 42.79    | 41.50  | 3.11      | 5          |
|            |             | e''               | 18.7400 | Conductivity ( $\sigma$ ):              | 0.89     | 0.92   | -3.20     | 5          |
| 11-11-2019 | Head 1900   | e'                | 40.4900 | Relative Permittivity ( $\epsilon_r$ ): | 40.49    | 40.00  | 1.23      | 5          |
|            |             | e''               | 13.7400 | Conductivity ( $\sigma$ ):              | 1.45     | 1.40   | 3.68      | 5          |
|            | Head 1850   | e'                | 40.6300 | Relative Permittivity ( $\epsilon_r$ ): | 40.63    | 40.00  | 1.58      | 5          |
|            |             | e''               | 13.8200 | Conductivity ( $\sigma$ ):              | 1.42     | 1.40   | 1.54      | 5          |
|            | Head 1910   | e'                | 40.4600 | Relative Permittivity ( $\epsilon_r$ ): | 40.46    | 40.00  | 1.15      | 5          |
|            |             | e''               | 13.7300 | Conductivity ( $\sigma$ ):              | 1.46     | 1.40   | 4.15      | 5          |
| 11-25-2019 | Head 750    | e'                | 40.8500 | Relative Permittivity ( $\epsilon_r$ ): | 40.85    | 41.96  | -2.65     | 5          |
|            |             | e''               | 21.3600 | Conductivity ( $\sigma$ ):              | 0.89     | 0.89   | -0.26     | 5          |
|            | Head 700    | e'                | 41.0000 | Relative Permittivity ( $\epsilon_r$ ): | 41.00    | 42.22  | -2.88     | 5          |
|            |             | e''               | 22.4100 | Conductivity ( $\sigma$ ):              | 0.87     | 0.89   | -1.91     | 5          |
|            | Head 790    | e'                | 40.7000 | Relative Permittivity ( $\epsilon_r$ ): | 40.70    | 41.76  | -2.53     | 5          |
|            |             | e''               | 20.5900 | Conductivity ( $\sigma$ ):              | 0.90     | 0.90   | 0.93      | 5          |
| 12-5-2019  | Head 1750   | e'                | 38.3900 | Relative Permittivity ( $\epsilon_r$ ): | 38.39    | 40.08  | -4.23     | 5          |
|            |             | e''               | 14.1000 | Conductivity ( $\sigma$ ):              | 1.37     | 1.37   | 0.22      | 5          |
|            | Head 1710   | e'                | 38.4500 | Relative Permittivity ( $\epsilon_r$ ): | 38.45    | 40.15  | -4.22     | 5          |
|            |             | e''               | 14.2000 | Conductivity ( $\sigma$ ):              | 1.35     | 1.35   | 0.28      | 5          |
|            | Head 1755   | e'                | 38.3800 | Relative Permittivity ( $\epsilon_r$ ): | 38.38    | 40.08  | -4.23     | 5          |
|            |             | e''               | 14.0900 | Conductivity ( $\sigma$ ):              | 1.37     | 1.37   | 0.23      | 5          |
| 12-5-2019  | Head 1900   | e'                | 38.1500 | Relative Permittivity ( $\epsilon_r$ ): | 38.15    | 40.00  | -4.63     | 5          |
|            |             | e''               | 13.8100 | Conductivity ( $\sigma$ ):              | 1.46     | 1.40   | 4.21      | 5          |
|            | Head 1850   | e'                | 38.2200 | Relative Permittivity ( $\epsilon_r$ ): | 38.22    | 40.00  | -4.45     | 5          |
|            |             | e''               | 13.9000 | Conductivity ( $\sigma$ ):              | 1.43     | 1.40   | 2.13      | 5          |
|            | Head 1910   | e'                | 38.1300 | Relative Permittivity ( $\epsilon_r$ ): | 38.13    | 40.00  | -4.67     | 5          |
|            |             | e''               | 13.8000 | Conductivity ( $\sigma$ ):              | 1.47     | 1.40   | 4.68      | 5          |
| 12-9-2019  | Head 1750   | e'                | 40.4200 | Relative Permittivity ( $\epsilon_r$ ): | 40.42    | 40.08  | 0.84      | 5          |
|            |             | e''               | 13.4600 | Conductivity ( $\sigma$ ):              | 1.31     | 1.37   | -4.33     | 5          |
|            | Head 1710   | e'                | 40.5500 | Relative Permittivity ( $\epsilon_r$ ): | 40.55    | 40.15  | 1.01      | 5          |
|            |             | e''               | 13.5100 | Conductivity ( $\sigma$ ):              | 1.28     | 1.35   | -4.59     | 5          |
|            | Head 1755   | e'                | 40.4200 | Relative Permittivity ( $\epsilon_r$ ): | 40.42    | 40.08  | 0.86      | 5          |
|            |             | e''               | 13.4600 | Conductivity ( $\sigma$ ):              | 1.31     | 1.37   | -4.25     | 5          |
| 12-9-2019  | Head 1900   | e'                | 40.1900 | Relative Permittivity ( $\epsilon_r$ ): | 40.19    | 40.00  | 0.47      | 5          |
|            |             | e''               | 13.2300 | Conductivity ( $\sigma$ ):              | 1.40     | 1.40   | -0.16     | 5          |
|            | Head 1850   | e'                | 40.2200 | Relative Permittivity ( $\epsilon_r$ ): | 40.22    | 40.00  | 0.55      | 5          |
|            |             | e''               | 13.2700 | Conductivity ( $\sigma$ ):              | 1.37     | 1.40   | -2.50     | 5          |
|            | Head 1910   | e'                | 40.1800 | Relative Permittivity ( $\epsilon_r$ ): | 40.18    | 40.00  | 0.45      | 5          |
|            |             | e''               | 13.2400 | Conductivity ( $\sigma$ ):              | 1.41     | 1.40   | 0.44      | 5          |
| 12-10-2019 | Head 835    | e'                | 41.1500 | Relative Permittivity ( $\epsilon_r$ ): | 41.15    | 41.50  | -0.84     | 5          |
|            |             | e''               | 20.1400 | Conductivity ( $\sigma$ ):              | 0.94     | 0.90   | 3.90      | 5          |
|            | Head 820    | e'                | 41.1600 | Relative Permittivity ( $\epsilon_r$ ): | 41.16    | 41.60  | -1.06     | 5          |
|            |             | e''               | 20.4100 | Conductivity ( $\sigma$ ):              | 0.93     | 0.90   | 3.58      | 5          |
|            | Head 850    | e'                | 41.1200 | Relative Permittivity ( $\epsilon_r$ ): | 41.12    | 41.50  | -0.92     | 5          |
|            |             | e''               | 19.9000 | Conductivity ( $\sigma$ ):              | 0.94     | 0.92   | 2.79      | 5          |
| 12-12-2019 | Head 1900   | e'                | 40.7000 | Relative Permittivity ( $\epsilon_r$ ): | 40.70    | 40.00  | 1.75      | 5          |
|            |             | e''               | 13.7700 | Conductivity ( $\sigma$ ):              | 1.45     | 1.40   | 3.91      | 5          |
|            | Head 1850   | e'                | 40.1600 | Relative Permittivity ( $\epsilon_r$ ): | 40.16    | 40.00  | 0.40      | 5          |
|            |             | e''               | 13.8000 | Conductivity ( $\sigma$ ):              | 1.42     | 1.40   | 1.40      | 5          |
|            | Head 1910   | e'                | 40.0500 | Relative Permittivity ( $\epsilon_r$ ): | 40.05    | 40.00  | 0.12      | 5          |
|            |             | e''               | 13.7700 | Conductivity ( $\sigma$ ):              | 1.46     | 1.40   | 4.46      | 5          |
| 12-21-2019 | Head 2600   | e'                | 38.2500 | Relative Permittivity ( $\epsilon_r$ ): | 38.25    | 39.01  | -1.95     | 5          |
|            |             | e''               | 13.5600 | Conductivity ( $\sigma$ ):              | 1.96     | 1.96   | -0.09     | 5          |
|            | Head 2500   | e'                | 38.4400 | Relative Permittivity ( $\epsilon_r$ ): | 38.44    | 39.14  | -1.78     | 5          |
|            |             | e''               | 13.5100 | Conductivity ( $\sigma$ ):              | 1.88     | 1.85   | 1.29      | 5          |
|            | Head 2700   | e'                | 38.0600 | Relative Permittivity ( $\epsilon_r$ ): | 38.06    | 38.88  | -2.12     | 5          |
|            |             | e''               | 13.5900 | Conductivity ( $\sigma$ ):              | 2.04     | 2.07   | -1.45     | 5          |

## SAR 4 Room

| Date       | Freq. (MHz) | Liquid Parameters |         |                                          | Measured | Target | Delta (%) | Limit ±(%) |
|------------|-------------|-------------------|---------|------------------------------------------|----------|--------|-----------|------------|
| 11-21-2019 | Head 2450   | e'                | 37.9100 | Relative Permittivity (ε <sub>r</sub> ): | 37.91    | 39.20  | -3.29     | 5          |
|            |             | e''               | 13.3800 | Conductivity (σ):                        | 1.82     | 1.80   | 1.26      | 5          |
|            | Head 2400   | e'                | 37.9800 | Relative Permittivity (ε <sub>r</sub> ): | 37.98    | 39.30  | -3.35     | 5          |
|            |             | e''               | 13.3900 | Conductivity (σ):                        | 1.79     | 1.75   | 2.01      | 5          |
|            | Head 2480   | e'                | 37.8600 | Relative Permittivity (ε <sub>r</sub> ): | 37.86    | 39.16  | -3.33     | 5          |
|            |             | e''               | 13.3900 | Conductivity (σ):                        | 1.85     | 1.83   | 0.76      | 5          |
| 12-01-2019 | Head 2450   | e'                | 37.9300 | Relative Permittivity (ε <sub>r</sub> ): | 37.93    | 39.20  | -3.24     | 5          |
|            |             | e''               | 13.5600 | Conductivity (σ):                        | 1.85     | 1.80   | 2.62      | 5          |
|            | Head 2400   | e'                | 38.0000 | Relative Permittivity (ε <sub>r</sub> ): | 38.00    | 39.30  | -3.30     | 5          |
|            |             | e''               | 13.5600 | Conductivity (σ):                        | 1.81     | 1.75   | 3.31      | 5          |
|            | Head 2480   | e'                | 37.8700 | Relative Permittivity (ε <sub>r</sub> ): | 37.87    | 39.16  | -3.30     | 5          |
|            |             | e''               | 13.5900 | Conductivity (σ):                        | 1.87     | 1.83   | 2.27      | 5          |
| 12-04-2019 | Head 1750   | e'                | 39.1300 | Relative Permittivity (ε <sub>r</sub> ): | 39.13    | 40.08  | -2.38     | 5          |
|            |             | e''               | 13.7300 | Conductivity (σ):                        | 1.34     | 1.37   | -2.41     | 5          |
|            | Head 1710   | e'                | 39.2200 | Relative Permittivity (ε <sub>r</sub> ): | 39.22    | 40.15  | -2.31     | 5          |
|            |             | e''               | 13.7800 | Conductivity (σ):                        | 1.31     | 1.35   | -2.69     | 5          |
|            | Head 1755   | e'                | 39.1300 | Relative Permittivity (ε <sub>r</sub> ): | 39.13    | 40.08  | -2.36     | 5          |
|            |             | e''               | 13.7200 | Conductivity (σ):                        | 1.34     | 1.37   | -2.40     | 5          |
| 12-04-2019 | Head 1900   | e'                | 38.8800 | Relative Permittivity (ε <sub>r</sub> ): | 38.88    | 40.00  | -2.80     | 5          |
|            |             | e''               | 13.5100 | Conductivity (σ):                        | 1.43     | 1.40   | 1.95      | 5          |
|            | Head 1850   | e'                | 38.9600 | Relative Permittivity (ε <sub>r</sub> ): | 38.96    | 40.00  | -2.60     | 5          |
|            |             | e''               | 13.5600 | Conductivity (σ):                        | 1.39     | 1.40   | -0.37     | 5          |
|            | Head 1910   | e'                | 38.8600 | Relative Permittivity (ε <sub>r</sub> ): | 38.86    | 40.00  | -2.85     | 5          |
|            |             | e''               | 13.5100 | Conductivity (σ):                        | 1.43     | 1.40   | 2.48      | 5          |
| 12-04-2019 | Head 2450   | e'                | 38.0000 | Relative Permittivity (ε <sub>r</sub> ): | 38.00    | 39.20  | -3.06     | 5          |
|            |             | e''               | 13.5200 | Conductivity (σ):                        | 1.84     | 1.80   | 2.32      | 5          |
|            | Head 2400   | e'                | 38.1100 | Relative Permittivity (ε <sub>r</sub> ): | 38.11    | 39.30  | -3.02     | 5          |
|            |             | e''               | 13.5000 | Conductivity (σ):                        | 1.80     | 1.75   | 2.85      | 5          |
|            | Head 2480   | e'                | 37.9300 | Relative Permittivity (ε <sub>r</sub> ): | 37.93    | 39.16  | -3.15     | 5          |
|            |             | e''               | 13.5400 | Conductivity (σ):                        | 1.87     | 1.83   | 1.89      | 5          |
| 12-16-2019 | Head 1900   | e'                | 38.5800 | Relative Permittivity (ε <sub>r</sub> ): | 38.58    | 40.00  | -3.55     | 5          |
|            |             | e''               | 13.4200 | Conductivity (σ):                        | 1.42     | 1.40   | 1.27      | 5          |
|            | Head 1850   | e'                | 38.6600 | Relative Permittivity (ε <sub>r</sub> ): | 38.66    | 40.00  | -3.35     | 5          |
|            |             | e''               | 13.5400 | Conductivity (σ):                        | 1.39     | 1.40   | -0.51     | 5          |
|            | Head 1910   | e'                | 38.5600 | Relative Permittivity (ε <sub>r</sub> ): | 38.56    | 40.00  | -3.60     | 5          |
|            |             | e''               | 13.4100 | Conductivity (σ):                        | 1.42     | 1.40   | 1.73      | 5          |
| 12-22-2019 | Head 1900   | e'                | 39.2300 | Relative Permittivity (ε <sub>r</sub> ): | 39.23    | 40.00  | -1.93     | 5          |
|            |             | e''               | 13.1700 | Conductivity (σ):                        | 1.39     | 1.40   | -0.62     | 5          |
|            | Head 1850   | e'                | 39.2600 | Relative Permittivity (ε <sub>r</sub> ): | 39.26    | 40.00  | -1.85     | 5          |
|            |             | e''               | 13.2100 | Conductivity (σ):                        | 1.36     | 1.40   | -2.94     | 5          |
|            | Head 1910   | e'                | 39.2100 | Relative Permittivity (ε <sub>r</sub> ): | 39.21    | 40.00  | -1.98     | 5          |
|            |             | e''               | 13.1700 | Conductivity (σ):                        | 1.40     | 1.40   | -0.09     | 5          |
| 12-22-2019 | Head 2450   | e'                | 38.2832 | Relative Permittivity (ε <sub>r</sub> ): | 38.28    | 39.20  | -2.34     | 5          |
|            |             | e''               | 12.9859 | Conductivity (σ):                        | 1.77     | 1.80   | -1.72     | 5          |
|            | Head 2400   | e'                | 38.3520 | Relative Permittivity (ε <sub>r</sub> ): | 38.35    | 39.30  | -2.40     | 5          |
|            |             | e''               | 12.9659 | Conductivity (σ):                        | 1.73     | 1.75   | -1.22     | 5          |
|            | Head 2480   | e'                | 38.2277 | Relative Permittivity (ε <sub>r</sub> ): | 38.23    | 39.16  | -2.39     | 5          |
|            |             | e''               | 13.0018 | Conductivity (σ):                        | 1.79     | 1.83   | -2.16     | 5          |

**SAR 5 Room**

| Date       | Freq. (MHz) | Liquid Parameters |         |                                         | Measured | Target | Delta (%) | Limit ±(%) |
|------------|-------------|-------------------|---------|-----------------------------------------|----------|--------|-----------|------------|
| 11-28-2019 | Head 5250   | e'                | 36.4000 | Relative Permittivity ( $\epsilon_r$ ): | 36.40    | 35.93  | 1.30      | 5          |
|            |             | e''               | 15.9700 | Conductivity ( $\sigma$ ):              | 4.66     | 4.70   | -0.86     | 5          |
|            | Head 5260   | e'                | 36.3800 | Relative Permittivity ( $\epsilon_r$ ): | 36.38    | 35.92  | 1.28      | 5          |
|            |             | e''               | 15.9800 | Conductivity ( $\sigma$ ):              | 4.67     | 4.71   | -0.82     | 5          |
|            | Head 5600   | e'                | 35.7900 | Relative Permittivity ( $\epsilon_r$ ): | 35.79    | 35.53  | 0.72      | 5          |
|            |             | e''               | 16.1900 | Conductivity ( $\sigma$ ):              | 5.04     | 5.06   | -0.38     | 5          |
|            | Head 5750   | e'                | 35.5100 | Relative Permittivity ( $\epsilon_r$ ): | 35.51    | 35.36  | 0.42      | 5          |
|            |             | e''               | 16.2500 | Conductivity ( $\sigma$ ):              | 5.20     | 5.21   | -0.35     | 5          |
|            | Head 5825   | e'                | 35.4400 | Relative Permittivity ( $\epsilon_r$ ): | 35.44    | 35.30  | 0.40      | 5          |
|            |             | e''               | 16.3400 | Conductivity ( $\sigma$ ):              | 5.29     | 5.27   | 0.42      | 5          |
| 12-01-2019 | Head 5250   | e'                | 36.7900 | Relative Permittivity ( $\epsilon_r$ ): | 36.79    | 35.93  | 2.38      | 5          |
|            |             | e''               | 15.8300 | Conductivity ( $\sigma$ ):              | 4.62     | 4.70   | -1.72     | 5          |
|            | Head 5260   | e'                | 36.7700 | Relative Permittivity ( $\epsilon_r$ ): | 36.77    | 35.92  | 2.36      | 5          |
|            |             | e''               | 15.8400 | Conductivity ( $\sigma$ ):              | 4.63     | 4.71   | -1.69     | 5          |
|            | Head 5600   | e'                | 36.2500 | Relative Permittivity ( $\epsilon_r$ ): | 36.25    | 35.53  | 2.02      | 5          |
|            |             | e''               | 16.0600 | Conductivity ( $\sigma$ ):              | 5.00     | 5.06   | -1.18     | 5          |
|            | Head 5750   | e'                | 36.0400 | Relative Permittivity ( $\epsilon_r$ ): | 36.04    | 35.36  | 1.92      | 5          |
|            |             | e''               | 16.1600 | Conductivity ( $\sigma$ ):              | 5.17     | 5.21   | -0.90     | 5          |
|            | Head 5825   | e'                | 35.9100 | Relative Permittivity ( $\epsilon_r$ ): | 35.91    | 35.30  | 1.73      | 5          |
|            |             | e''               | 16.2100 | Conductivity ( $\sigma$ ):              | 5.25     | 5.27   | -0.38     | 5          |
| 12-04-2019 | Head 5250   | e'                | 36.6300 | Relative Permittivity ( $\epsilon_r$ ): | 36.63    | 35.93  | 1.94      | 5          |
|            |             | e''               | 15.9700 | Conductivity ( $\sigma$ ):              | 4.66     | 4.70   | -0.86     | 5          |
|            | Head 5260   | e'                | 36.6100 | Relative Permittivity ( $\epsilon_r$ ): | 36.61    | 35.92  | 1.92      | 5          |
|            |             | e''               | 15.9800 | Conductivity ( $\sigma$ ):              | 4.67     | 4.71   | -0.82     | 5          |
|            | Head 5600   | e'                | 36.0900 | Relative Permittivity ( $\epsilon_r$ ): | 36.09    | 35.53  | 1.57      | 5          |
|            |             | e''               | 16.2000 | Conductivity ( $\sigma$ ):              | 5.04     | 5.06   | -0.31     | 5          |
|            | Head 5750   | e'                | 35.8300 | Relative Permittivity ( $\epsilon_r$ ): | 35.83    | 35.36  | 1.32      | 5          |
|            |             | e''               | 16.2700 | Conductivity ( $\sigma$ ):              | 5.20     | 5.21   | -0.23     | 5          |
|            | Head 5825   | e'                | 35.7100 | Relative Permittivity ( $\epsilon_r$ ): | 35.71    | 35.30  | 1.16      | 5          |
|            |             | e''               | 16.3200 | Conductivity ( $\sigma$ ):              | 5.29     | 5.27   | 0.30      | 5          |
| 12-09-2019 | Head 5250   | e'                | 36.6800 | Relative Permittivity ( $\epsilon_r$ ): | 36.68    | 35.93  | 2.08      | 5          |
|            |             | e''               | 15.8200 | Conductivity ( $\sigma$ ):              | 4.62     | 4.70   | -1.79     | 5          |
|            | Head 5260   | e'                | 36.6500 | Relative Permittivity ( $\epsilon_r$ ): | 36.65    | 35.92  | 2.03      | 5          |
|            |             | e''               | 15.8300 | Conductivity ( $\sigma$ ):              | 4.63     | 4.71   | -1.75     | 5          |
|            | Head 5600   | e'                | 36.0800 | Relative Permittivity ( $\epsilon_r$ ): | 36.08    | 35.53  | 1.54      | 5          |
|            |             | e''               | 16.1000 | Conductivity ( $\sigma$ ):              | 5.01     | 5.06   | -0.93     | 5          |
|            | Head 5750   | e'                | 35.8200 | Relative Permittivity ( $\epsilon_r$ ): | 35.82    | 35.36  | 1.29      | 5          |
|            |             | e''               | 16.2300 | Conductivity ( $\sigma$ ):              | 5.19     | 5.21   | -0.47     | 5          |
|            | Head 5825   | e'                | 35.7000 | Relative Permittivity ( $\epsilon_r$ ): | 35.70    | 35.30  | 1.13      | 5          |
|            |             | e''               | 16.2900 | Conductivity ( $\sigma$ ):              | 5.28     | 5.27   | 0.12      | 5          |
| 12-19-2019 | Head 5250   | e'                | 35.8100 | Relative Permittivity ( $\epsilon_r$ ): | 35.81    | 35.93  | -0.34     | 5          |
|            |             | e''               | 16.0700 | Conductivity ( $\sigma$ ):              | 4.69     | 4.70   | -0.23     | 5          |
|            | Head 5260   | e'                | 35.7900 | Relative Permittivity ( $\epsilon_r$ ): | 35.79    | 35.92  | -0.37     | 5          |
|            |             | e''               | 16.0800 | Conductivity ( $\sigma$ ):              | 4.70     | 4.71   | -0.20     | 5          |
|            | Head 5600   | e'                | 35.2000 | Relative Permittivity ( $\epsilon_r$ ): | 35.20    | 35.53  | -0.94     | 5          |
|            |             | e''               | 16.3300 | Conductivity ( $\sigma$ ):              | 5.08     | 5.06   | 0.49      | 5          |
|            | Head 5750   | e'                | 34.9600 | Relative Permittivity ( $\epsilon_r$ ): | 34.96    | 35.36  | -1.14     | 5          |
|            |             | e''               | 16.4400 | Conductivity ( $\sigma$ ):              | 5.26     | 5.21   | 0.81      | 5          |
|            | Head 5825   | e'                | 34.8300 | Relative Permittivity ( $\epsilon_r$ ): | 34.83    | 35.30  | -1.33     | 5          |
|            |             | e''               | 16.4900 | Conductivity ( $\sigma$ ):              | 5.34     | 5.27   | 1.35      | 5          |
| 12-23-2019 | Head 5250   | e'                | 36.7000 | Relative Permittivity ( $\epsilon_r$ ): | 36.70    | 35.93  | 2.13      | 5          |
|            |             | e''               | 16.1600 | Conductivity ( $\sigma$ ):              | 4.72     | 4.70   | 0.32      | 5          |
|            | Head 5260   | e'                | 36.6800 | Relative Permittivity ( $\epsilon_r$ ): | 36.68    | 35.92  | 2.11      | 5          |
|            |             | e''               | 16.1600 | Conductivity ( $\sigma$ ):              | 4.73     | 4.71   | 0.30      | 5          |
|            | Head 5600   | e'                | 36.1100 | Relative Permittivity ( $\epsilon_r$ ): | 36.11    | 35.53  | 1.62      | 5          |
|            |             | e''               | 16.3700 | Conductivity ( $\sigma$ ):              | 5.10     | 5.06   | 0.73      | 5          |
|            | Head 5750   | e'                | 35.9200 | Relative Permittivity ( $\epsilon_r$ ): | 35.92    | 35.36  | 1.58      | 5          |
|            |             | e''               | 16.5000 | Conductivity ( $\sigma$ ):              | 5.28     | 5.21   | 1.18      | 5          |
|            | Head 5825   | e'                | 35.8300 | Relative Permittivity ( $\epsilon_r$ ): | 35.83    | 35.30  | 1.50      | 5          |
|            |             | e''               | 16.5600 | Conductivity ( $\sigma$ ):              | 5.36     | 5.27   | 1.78      | 5          |

## 8.2 System Check

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are re-measured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

### System Performance Check Measurement Conditions:

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0  $\pm$  0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The depth of tissue-equivalent liquid in a phantom must be  $\geq$  15.0 cm for SAR measurements  $\leq$  3 GHz and  $\geq$  10.0 cm for measurements  $>$  3 GHz.
- The DASY system with an E-Field Probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10 mm (above 1 GHz) and 15 mm (below 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 15 mm was aligned with the dipole.  
For 5 GHz band - The coarse grid with a grid spacing of 10 mm was aligned with the dipole.
- Special 7x7x7 (below 3 GHz) and/or 8x8x7 (above 3 GHz) fine cube was chosen for the cube.
- Distance between probe sensors and phantom surface was set to 2.5 mm.  
For 5 GHz band - Distance between probe sensors and phantom surface was set to 1.4 mm
- The dipole input power (forward power) was 100 mW.
- The results are normalized to 1 W input power.

### Reference Target SAR Values

The reference SAR values can be obtained from the calibration certificate of system validation dipoles.

| System Dipole | Serial No. | Cal. Date  | Freq. (MHz) | Target SAR Values (W/kg) |       |
|---------------|------------|------------|-------------|--------------------------|-------|
|               |            |            |             | 1g/10g                   | Head  |
| D750V3        | 1122       | 2-19-2018  | 750         | 1g                       | 8.22  |
|               |            |            |             | 10g                      | 5.35  |
| D835V2        | 4d174      | 1-23-2019  | 835         | 1g                       | 9.28  |
|               |            |            |             | 10g                      | 6.04  |
| D1750V2       | 1125       | 2-16-2018  | 1750        | 1g                       | 36.50 |
|               |            |            |             | 10g                      | 19.30 |
| D1900V2       | 5d190      | 10-23-2018 | 1900        | 1g                       | 39.10 |
|               |            |            |             | 10g                      | 20.40 |
| D2450V2       | 939        | 7-25-2019  | 2450        | 1g                       | 53.20 |
|               |            |            |             | 10g                      | 25.10 |
| D2600V2       | 1097       | 9-19-2019  | 2600        | 1g                       | 57.30 |
|               |            |            |             | 10g                      | 25.70 |
| D5GHzV2       | 1209       | 2-28-2019  | 5250        | 1g                       | 78.70 |
|               |            |            |             | 10g                      | 22.60 |
|               |            |            | 5600        | 1g                       | 83.70 |
|               |            |            |             | 10g                      | 23.90 |
|               |            |            | 5750        | 1g                       | 80.30 |
|               |            |            |             | 10g                      | 23.00 |

### Note(s):

Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations (D750, SN : 1122, D1750, SN : 1125, D1900, SN : 5d190)

**System Check Results**

The 1-g and 10-g SAR measured with a reference dipole, using the required tissue-equivalent medium at the test frequency, must be within 10% of the manufacturer calibrated dipole SAR target.

**SAR 1 Room**

| Date Tested | System Dipole  |          | T.S. Liquid | Measured Results    |                  | Target (Ref. Value) | Delta $\pm 10\%$ | Plot No. |
|-------------|----------------|----------|-------------|---------------------|------------------|---------------------|------------------|----------|
|             | Type           | Serial # |             | Zoom Scan to 100 mW | Normalize to 1 W |                     |                  |          |
| 11-12-2019  | D835V2         | 4d174    | Head        | 1g                  | 0.93             | 9.28                | 9.28             | 0.00     |
|             |                |          |             | 10g                 | 0.61             | 6.09                | 6.04             | 0.83     |
| 11-21-2019  | D5GHzV2 (5250) | 1209     | Head        | 1g                  | 8.15             | 81.50               | 78.70            | 3.56     |
|             |                |          |             | 10g                 | 2.34             | 23.40               | 22.60            | 3.54     |
| 11-21-2019  | D5GHzV2 (5600) | 1209     | Head        | 1g                  | 8.23             | 82.30               | 83.70            | -1.67    |
|             |                |          |             | 10g                 | 2.33             | 23.30               | 23.90            | -2.51    |
| 11-21-2019  | D5GHzV2 (5750) | 1209     | Head        | 1g                  | 8.69             | 86.90               | 80.30            | 8.22     |
|             |                |          |             | 10g                 | 2.48             | 24.80               | 23.00            | 7.83     |
| 12-3-2019   | D5GHzV2 (5250) | 1209     | Head        | 1g                  | 7.45             | 74.50               | 78.70            | -5.34    |
|             |                |          |             | 10g                 | 2.13             | 21.30               | 22.60            | -5.75    |
| 12-3-2019   | D5GHzV2 (5600) | 1209     | Head        | 1g                  | 8.38             | 83.80               | 83.70            | 0.12     |
|             |                |          |             | 10g                 | 2.36             | 23.60               | 23.90            | -1.26    |
| 12-3-2019   | D5GHzV2 (5750) | 1209     | Head        | 1g                  | 8.57             | 85.70               | 80.30            | 6.72     |
|             |                |          |             | 10g                 | 2.44             | 24.40               | 23.00            | 6.09     |
| 12-16-2019  | D835V2         | 4d174    | Head        | 1g                  | 0.90             | 9.01                | 9.28             | -2.91    |
|             |                |          |             | 10g                 | 0.59             | 5.93                | 6.04             | -1.82    |

**SAR 2 Room**

| Date Tested | System Dipole |          | T.S. Liquid | Measured Results    |                  | Target (Ref. Value) | Delta $\pm 10\%$ | Plot No. |
|-------------|---------------|----------|-------------|---------------------|------------------|---------------------|------------------|----------|
|             | Type          | Serial # |             | Zoom Scan to 100 mW | Normalize to 1 W |                     |                  |          |
| 12-20-2019  | D835V2        | 4d174    | Head        | 1g                  | 0.96             | 9.55                | 9.28             | 2.91     |
|             |               |          |             | 10g                 | 0.63             | 6.31                | 6.04             | 4.47     |
| 12-20-2019  | D1750V2       | 1125     | Head        | 1g                  | 3.62             | 36.20               | 36.50            | -0.82    |
|             |               |          |             | 10g                 | 1.93             | 19.30               | 19.30            | 0.00     |

**SAR 3 Room**

| Date Tested | System Dipole |          | T.S. Liquid | Measured Results    |                  | Target (Ref. Value) | Delta $\pm 10\%$ | Plot No. |
|-------------|---------------|----------|-------------|---------------------|------------------|---------------------|------------------|----------|
|             | Type          | Serial # |             | Zoom Scan to 100 mW | Normalize to 1 W |                     |                  |          |
| 11-11-2019  | D835V2        | 4d174    | Head        | 1g                  | 0.95             | 9.45                | 9.28             | 1.83     |
|             |               |          |             | 10g                 | 0.62             | 6.23                | 6.04             | 3.15     |
| 11-11-2019  | D1900V2       | 5d190    | Head        | 1g                  | 4.04             | 40.40               | 39.10            | 3.32     |
|             |               |          |             | 10g                 | 2.10             | 21.00               | 20.40            | 2.94     |
| 11-25-2019  | D750V3        | 1122     | Head        | 1g                  | 0.80             | 8.03                | 8.22             | -2.31    |
|             |               |          |             | 10g                 | 0.53             | 5.30                | 5.35             | -0.93    |
| 12-5-2019   | D1750V2       | 1125     | Head        | 1g                  | 3.52             | 35.20               | 36.50            | -3.56    |
|             |               |          |             | 10g                 | 1.87             | 18.70               | 19.30            | -3.11    |
| 12-5-2019   | D1900V2       | 5d190    | Head        | 1g                  | 4.09             | 40.90               | 39.10            | 4.60     |
|             |               |          |             | 10g                 | 2.12             | 21.20               | 20.40            | 3.92     |
| 12-9-2019   | D1750V2       | 1125     | Head        | 1g                  | 3.52             | 35.20               | 36.50            | -3.56    |
|             |               |          |             | 10g                 | 1.91             | 19.10               | 19.30            | -1.04    |
| 12-9-2019   | D1900V2       | 5d190    | Head        | 1g                  | 3.83             | 38.30               | 39.10            | -2.05    |
|             |               |          |             | 10g                 | 2.01             | 20.10               | 20.40            | -1.47    |
| 12-10-2019  | D835V2        | 4d174    | Head        | 1g                  | 0.91             | 9.08                | 9.28             | -2.16    |
|             |               |          |             | 10g                 | 0.59             | 5.94                | 6.04             | -1.66    |
| 12-12-2019  | D1900V2       | 5d190    | Head        | 1g                  | 3.72             | 37.20               | 39.10            | -4.86    |
|             |               |          |             | 10g                 | 1.92             | 19.20               | 20.40            | -5.88    |
| 12-21-2019  | D2600V2       | 1097     | Head        | 1g                  | 5.67             | 56.70               | 57.30            | -1.05    |
|             |               |          |             | 10g                 | 2.55             | 25.50               | 25.70            | -0.78    |

**SAR 4 Room**

| Date Tested | System Dipole |          | T.S.<br>Liquid | Measured Results       |                     | Target<br>(Ref. Value) | Delta<br>±10 % | Plot No. |
|-------------|---------------|----------|----------------|------------------------|---------------------|------------------------|----------------|----------|
|             | Type          | Serial # |                | Zoom Scan to<br>100 mW | Normalize<br>to 1 W |                        |                |          |
| 11-21-2019  | D2450V2       | 939      | Head           | 1g                     | 5.38                | 53.80                  | 53.20          | 1.13     |
|             |               |          |                | 10g                    | 2.49                | 24.90                  | 25.10          | -0.80    |
| 12-1-2019   | D2450V2       | 939      | Head           | 1g                     | 5.58                | 55.80                  | 53.20          | 4.89     |
|             |               |          |                | 10g                    | 2.58                | 25.80                  | 25.10          | 2.79     |
| 12-4-2019   | D1750V2       | 1125     | Head           | 1g                     | 3.36                | 33.60                  | 36.50          | -7.95    |
|             |               |          |                | 10g                    | 1.77                | 17.70                  | 19.30          | -8.29    |
| 12-4-2019   | D1900V2       | 5d190    | Head           | 1g                     | 3.98                | 39.80                  | 39.10          | 1.79     |
|             |               |          |                | 10g                    | 2.04                | 20.40                  | 20.40          | 0.00     |
| 12-4-2019   | D2450V2       | 939      | Head           | 1g                     | 5.51                | 55.10                  | 53.20          | 3.57     |
|             |               |          |                | 10g                    | 2.54                | 25.40                  | 25.10          | 1.20     |
| 12-16-2019  | D1900V2       | 5d190    | Head           | 1g                     | 3.62                | 36.20                  | 39.10          | -7.42    |
|             |               |          |                | 10g                    | 1.87                | 18.70                  | 20.40          | -8.33    |
| 12-22-2019  | D1900V2       | 5d190    | Head           | 1g                     | 3.72                | 37.20                  | 39.10          | -4.86    |
|             |               |          |                | 10g                    | 1.92                | 19.20                  | 20.40          | -5.88    |
| 12-22-2019  | D2450V2       | 939      | Head           | 1g                     | 4.93                | 49.30                  | 53.20          | -7.33    |
|             |               |          |                | 10g                    | 2.27                | 22.70                  | 25.10          | -9.56    |

**SAR 5 Room**

| Date Tested | System Dipole     |          | T.S.<br>Liquid | Measured Results       |                     | Target<br>(Ref. Value) | Delta<br>±10 % | Plot No. |
|-------------|-------------------|----------|----------------|------------------------|---------------------|------------------------|----------------|----------|
|             | Type              | Serial # |                | Zoom Scan to<br>100 mW | Normalize<br>to 1 W |                        |                |          |
| 11-28-2019  | D5GHzV2<br>(5250) | 1209     | Head           | 1g                     | 8.37                | 83.70                  | 78.70          | 6.35     |
|             |                   |          |                | 10g                    | 2.34                | 23.40                  | 22.60          | 3.54     |
| 11-28-2019  | D5GHzV2<br>(5600) | 1209     | Head           | 1g                     | 8.25                | 82.50                  | 83.70          | -1.43    |
|             |                   |          |                | 10g                    | 2.30                | 23.00                  | 23.90          | -3.77    |
| 11-28-2019  | D5GHzV2<br>(5750) | 1209     | Head           | 1g                     | 8.09                | 80.90                  | 80.30          | 0.75     |
|             |                   |          |                | 10g                    | 2.23                | 22.30                  | 23.00          | -3.04    |
| 12-1-2019   | D5GHzV2<br>(5250) | 1209     | Head           | 1g                     | 7.60                | 76.00                  | 78.70          | -3.43    |
|             |                   |          |                | 10g                    | 2.13                | 21.30                  | 22.60          | -5.75    |
| 12-1-2019   | D5GHzV2<br>(5600) | 1209     | Head           | 1g                     | 7.92                | 79.20                  | 83.70          | -5.38    |
|             |                   |          |                | 10g                    | 2.19                | 21.90                  | 23.90          | -8.37    |
| 12-1-2019   | D5GHzV2<br>(5750) | 1209     | Head           | 1g                     | 7.64                | 76.40                  | 80.30          | -4.86    |
|             |                   |          |                | 10g                    | 2.12                | 21.20                  | 23.00          | -7.83    |
| 12-4-2019   | D5GHzV2<br>(5250) | 1209     | Head           | 1g                     | 7.47                | 74.70                  | 78.70          | -5.08    |
|             |                   |          |                | 10g                    | 2.08                | 20.80                  | 22.60          | -7.96    |
| 12-4-2019   | D5GHzV2<br>(5600) | 1209     | Head           | 1g                     | 8.13                | 81.30                  | 83.70          | -2.87    |
|             |                   |          |                | 10g                    | 2.26                | 22.60                  | 23.90          | -5.44    |
| 12-4-2019   | D5GHzV2<br>(5750) | 1209     | Head           | 1g                     | 7.65                | 76.50                  | 80.30          | -4.73    |
|             |                   |          |                | 10g                    | 2.11                | 21.10                  | 23.00          | -8.26    |
| 12-9-2019   | D5GHzV2<br>(5250) | 1209     | Head           | 1g                     | 7.76                | 77.60                  | 78.70          | -1.40    |
|             |                   |          |                | 10g                    | 2.15                | 21.50                  | 22.60          | -4.87    |
| 12-9-2019   | D5GHzV2<br>(5600) | 1209     | Head           | 1g                     | 8.49                | 84.90                  | 83.70          | 1.43     |
|             |                   |          |                | 10g                    | 2.33                | 23.30                  | 23.90          | -2.51    |
| 12-9-2019   | D5GHzV2<br>(5750) | 1209     | Head           | 1g                     | 7.97                | 79.70                  | 80.30          | -0.75    |
|             |                   |          |                | 10g                    | 2.18                | 21.80                  | 23.00          | -5.22    |
| 12-19-2019  | D5GHzV2<br>(5250) | 1209     | Head           | 1g                     | 7.72                | 77.20                  | 78.70          | -1.91    |
|             |                   |          |                | 10g                    | 2.17                | 21.70                  | 22.60          | -3.98    |
| 12-19-2019  | D5GHzV2<br>(5600) | 1209     | Head           | 1g                     | 8.01                | 80.10                  | 83.70          | -4.30    |
|             |                   |          |                | 10g                    | 2.22                | 22.20                  | 23.90          | -7.11    |
| 12-19-2019  | D5GHzV2<br>(5750) | 1209     | Head           | 1g                     | 7.90                | 79.00                  | 80.30          | -1.62    |
|             |                   |          |                | 10g                    | 2.19                | 21.90                  | 23.00          | -4.78    |
| 12-23-2019  | D5GHzV2<br>(5250) | 1209     | Head           | 1g                     | 7.65                | 76.50                  | 78.70          | -2.80    |
|             |                   |          |                | 10g                    | 2.13                | 21.30                  | 22.60          | -5.75    |
| 12-23-2019  | D5GHzV2<br>(5600) | 1209     | Head           | 1g                     | 8.97                | 89.70                  | 83.70          | 7.17     |
|             |                   |          |                | 10g                    | 2.48                | 24.80                  | 23.90          | 3.77     |
| 12-23-2019  | D5GHzV2<br>(5750) | 1209     | Head           | 1g                     | 7.65                | 76.50                  | 80.30          | -4.73    |
|             |                   |          |                | 10g                    | 2.10                | 21.00                  | 23.00          | -8.70    |

## 9. Conducted Output Power Measurements

Conducted output power were measured according to guide of both ANSI C63.26-2015 & 971168 D01 Power Meas License Digital System v03r01.

### 9.1 GSM

#### Per KDB 941225 D01 3G SAR Procedures:

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.

#### GSM850 Measured Results

| Mode         | Coding Scheme | Time Slots | Ch No. | Freq. (MHz) | Maximum Average Power (dBm) |           |               |           |
|--------------|---------------|------------|--------|-------------|-----------------------------|-----------|---------------|-----------|
|              |               |            |        |             | Measured                    |           | Tune-up Limit |           |
|              |               |            |        |             | Burst Pwr                   | Frame Pwr | Burst Pwr     | Frame Pwr |
| GSM (Voice)  | CS1           | 1          | 128    | 824.2       | 32.4                        | 23.3      | 34.0          | 25.0      |
|              |               |            | 190    | 836.6       | 32.5                        | 23.4      |               |           |
|              |               |            | 251    | 848.8       | 32.5                        | 23.5      |               |           |
| GPRS (GMSK)  | CS1           | 1          | 128    | 824.2       | 32.5                        | 23.4      | 34.0          | 25.0      |
|              |               |            | 190    | 836.6       | 32.5                        | 23.5      |               |           |
|              |               |            | 251    | 848.8       | 32.5                        | 23.5      |               |           |
|              |               | 2          | 128    | 824.2       | 29.3                        | 23.3      | 31.0          | 25.0      |
|              |               |            | 190    | 836.6       | 29.3                        | 23.3      |               |           |
|              |               |            | 251    | 848.8       | 29.4                        | 23.4      |               |           |
|              |               | 3          | 128    | 824.2       | 28.2                        | 23.9      | 30.0          | 25.7      |
|              |               |            | 190    | 836.6       | 28.2                        | 23.9      |               |           |
|              |               |            | 251    | 848.8       | 28.2                        | 24.0      |               |           |
|              |               | 4          | 128    | 824.2       | 27.6                        | 24.6      | 29.0          | 26.0      |
|              |               |            | 190    | 836.6       | 27.6                        | 24.6      |               |           |
|              |               |            | 251    | 848.8       | 27.5                        | 24.5      |               |           |
| EGPRS (8PSK) | MCS5          | 1          | 128    | 824.2       | 25.3                        | 16.2      | 26.5          | 17.5      |
|              |               |            | 190    | 836.6       | 25.3                        | 16.3      |               |           |
|              |               |            | 251    | 848.8       | 25.4                        | 16.3      |               |           |
|              |               | 2          | 128    | 824.2       | 22.3                        | 16.3      | 23.5          | 17.5      |
|              |               |            | 190    | 836.6       | 22.4                        | 16.3      |               |           |
|              |               |            | 251    | 848.8       | 22.4                        | 16.4      |               |           |
|              |               | 3          | 128    | 824.2       | 21.3                        | 17.1      | 22.5          | 18.2      |
|              |               |            | 190    | 836.6       | 21.4                        | 17.1      |               |           |
|              |               |            | 251    | 848.8       | 21.4                        | 17.2      |               |           |
|              |               | 4          | 128    | 824.2       | 20.3                        | 17.3      | 21.5          | 18.5      |
|              |               |            | 190    | 836.6       | 20.3                        | 17.3      |               |           |
|              |               |            | 251    | 848.8       | 20.1                        | 17.1      |               |           |

#### Notes:

The worst-case configuration and mode for SAR testing is determined to be as follows:

- GMSK (GPRS) mode with 4 time slots for Max power, based on the Tune-up Procedure. Refer to §6.3.
- SAR is not required for EGPRS (8PSK) mode because the maximum output power and tune-up limit is  $\leq 1/4\text{dB}$  higher than GMSK GPRS or the adjusted SAR of the highest reported SAR of GMSK GPRS is  $\leq 1.2\text{W/kg}$ .

**GSM1900 Measured Results**

| Mode         | Coding Scheme | Time Slots | Ch No. | Freq. (MHz) | Maximum Average Power (dBm) |           |               |           | Reduced Average Power (dBm)<br>Hotspot back-off |           |               |           | Reduced Average Power (dBm)<br>Proximity sensor back-off |           |               |           |
|--------------|---------------|------------|--------|-------------|-----------------------------|-----------|---------------|-----------|-------------------------------------------------|-----------|---------------|-----------|----------------------------------------------------------|-----------|---------------|-----------|
|              |               |            |        |             | Measured                    |           | Tune-up Limit |           | Measured                                        |           | Tune-up Limit |           | Measured                                                 |           | Tune-up Limit |           |
|              |               |            |        |             | Burst Pwr                   | Frame Pwr | Burst Pwr     | Frame Pwr | Burst Pwr                                       | Frame Pwr | Burst Pwr     | Frame Pwr | Burst Pwr                                                | Frame Pwr | Burst Pwr     | Frame Pwr |
| GSM (Voice)  | CS1           | 1          | 512    | 1850.2      | 29.6                        | 20.5      | 31.0          | 22.0      | 28.6                                            | 19.6      | 30.0          | 21.0      | 28.7                                                     | 19.6      | 30.0          | 21.0      |
|              |               |            | 661    | 1880.0      | 29.4                        | 20.3      |               |           | 28.4                                            | 19.4      |               |           | 28.6                                                     | 19.5      |               |           |
|              |               |            | 810    | 1909.8      | 29.3                        | 20.3      |               |           | 28.2                                            | 19.2      |               |           | 28.4                                                     | 19.4      |               |           |
| GPRS (GMSK)  | CS1           | 1          | 512    | 1850.2      | 29.5                        | 20.5      | 31.0          | 22.0      | 28.6                                            | 19.6      | 30.0          | 21.0      | 29.1                                                     | 20.1      | 30.0          | 21.0      |
|              |               |            | 661    | 1880.0      | 29.4                        | 20.4      |               |           | 28.4                                            | 19.3      |               |           | 29.1                                                     | 20.1      |               |           |
|              |               |            | 810    | 1909.8      | 29.3                        | 20.3      |               |           | 28.2                                            | 19.2      |               |           | 28.7                                                     | 19.7      |               |           |
|              |               | 2          | 512    | 1850.2      | 26.1                        | 20.1      | 27.5          | 21.5      | 25.6                                            | 19.5      | 26.5          | 20.5      | 25.5                                                     | 19.5      | 26.5          | 20.5      |
|              |               |            | 661    | 1880.0      | 25.9                        | 19.9      |               |           | 25.2                                            | 19.2      |               |           | 25.6                                                     | 19.6      |               |           |
|              |               |            | 810    | 1909.8      | 25.6                        | 19.6      |               |           | 25.0                                            | 19.0      |               |           | 25.2                                                     | 19.2      |               |           |
|              |               | 3          | 512    | 1850.2      | 24.7                        | 20.4      | 26.0          | 21.7      | 23.0                                            | 18.8      | 25.0          | 20.7      | 23.7                                                     | 19.5      | 25.0          | 20.7      |
|              |               |            | 661    | 1880.0      | 24.5                        | 20.2      |               |           | 23.2                                            | 19.0      |               |           | 23.8                                                     | 19.6      |               |           |
|              |               |            | 810    | 1909.8      | 24.2                        | 20.0      |               |           | 23.0                                            | 18.7      |               |           | 23.0                                                     | 18.7      |               |           |
|              |               | 4          | 512    | 1850.2      | 23.5                        | 20.5      | 25.0          | 22.0      | 22.3                                            | 19.2      | 24.0          | 21.0      | 22.6                                                     | 19.5      | 24.0          | 21.0      |
|              |               |            | 661    | 1880.0      | 23.1                        | 20.1      |               |           | 22.3                                            | 19.3      |               |           | 22.7                                                     | 19.7      |               |           |
|              |               |            | 810    | 1909.8      | 22.9                        | 19.9      |               |           | 22.0                                            | 19.0      |               |           | 22.3                                                     | 19.3      |               |           |
| EGPRS (8PSK) | MCS5          | 1          | 512    | 1850.2      | 25.3                        | 16.3      | 26.5          | 17.5      | 24.5                                            | 15.5      | 25.5          | 16.5      | 24.6                                                     | 15.6      | 25.5          | 16.5      |
|              |               |            | 661    | 1880.0      | 25.3                        | 16.3      |               |           | 24.3                                            | 15.3      |               |           | 24.7                                                     | 15.7      |               |           |
|              |               |            | 810    | 1909.8      | 25.1                        | 16.0      |               |           | 24.2                                            | 15.2      |               |           | 24.4                                                     | 15.4      |               |           |
|              |               | 2          | 512    | 1850.2      | 21.8                        | 15.8      | 23.0          | 17.0      | 20.9                                            | 14.9      | 22.0          | 16.0      | 21.1                                                     | 15.1      | 22.0          | 16.0      |
|              |               |            | 661    | 1880.0      | 21.6                        | 15.6      |               |           | 20.7                                            | 14.7      |               |           | 21.0                                                     | 15.0      |               |           |
|              |               |            | 810    | 1909.8      | 21.4                        | 15.3      |               |           | 20.5                                            | 14.4      |               |           | 20.6                                                     | 14.6      |               |           |
|              |               | 3          | 512    | 1850.2      | 20.8                        | 16.6      | 21.5          | 17.2      | 19.7                                            | 15.4      | 20.5          | 16.2      | 19.9                                                     | 15.7      | 20.5          | 16.2      |
|              |               |            | 661    | 1880.0      | 20.4                        | 16.2      |               |           | 19.5                                            | 15.2      |               |           | 20.0                                                     | 15.7      |               |           |
|              |               |            | 810    | 1909.8      | 20.4                        | 16.1      |               |           | 19.4                                            | 15.2      |               |           | 19.3                                                     | 15.1      |               |           |
|              |               | 4          | 512    | 1850.2      | 19.5                        | 16.5      | 20.5          | 17.5      | 18.6                                            | 15.6      | 19.5          | 16.5      | 18.7                                                     | 15.7      | 19.5          | 16.5      |
|              |               |            | 661    | 1880.0      | 19.4                        | 16.4      |               |           | 18.5                                            | 15.5      |               |           | 18.8                                                     | 15.8      |               |           |
|              |               |            | 810    | 1909.8      | 19.1                        | 16.1      |               |           | 18.2                                            | 15.2      |               |           | 18.4                                                     | 15.4      |               |           |

**Notes:**

The worst-case configuration and mode for SAR testing is determined to be as follows:

- GMSK (GPRS) mode with 4 time slots for Max power & Reduced power, based on the Tune-up Procedure. Refer to §6.3.
- SAR is not required for EGPRS (8PSK) mode because the maximum output power and tune-up limit is  $\leq 1/4$ dB higher than GMSK GPRS or the adjusted SAR of the highest reported SAR of GMSK GPRS is  $\leq 1.2$ W/kg.

## 9.2 W-CDMA

### Release 99 Setup Procedures used to establish the test signals

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

| Mode                   | Subtest                 | Rel99        |
|------------------------|-------------------------|--------------|
| WCDMA General Settings | Loopback Mode           | Test Mode 2  |
|                        | Rel99 RMC               | 12.2kbps RMC |
|                        | Power Control Algorithm | Algorithm2   |
|                        | $\beta_c/\beta_d$       | 8/15         |

### HSDPA Setup Procedures used to establish the test signals

The following 4 Sub-tests were completed according to Release 5 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

|                         | Mode                                 | HSDPA        | HSDPA | HSDPA | HSDPA |
|-------------------------|--------------------------------------|--------------|-------|-------|-------|
|                         | Subtest                              | 1            | 2     | 3     | 4     |
| W-CDMA General Settings | Loopback Mode                        | Test Mode 1  |       |       |       |
|                         | Rel99 RMC                            | 12.2kbps RMC |       |       |       |
|                         | HSDPA FRC                            | H-Set 1      |       |       |       |
|                         | Power Control Algorithm              | Algorithm 2  |       |       |       |
|                         | $\beta_c$                            | 2/15         | 11/15 | 15/15 | 15/15 |
|                         | $\beta_d$                            | 15/15        | 15/15 | 8/15  | 4/15  |
|                         | Bd (SF)                              | 64           |       |       |       |
|                         | $\beta_c/\beta_d$                    | 2/15         | 11/15 | 15/8  | 15/4  |
|                         | $\beta_{hs}$                         | 4/15         | 24/15 | 30/15 | 30/15 |
|                         | MPR (dB)                             | 0            | 0     | 0.5   | 0.5   |
| HSDPA Specific Settings | $D_{ACK}$                            | 8            |       |       |       |
|                         | $D_{NAK}$                            | 8            |       |       |       |
|                         | DCQI                                 | 8            |       |       |       |
|                         | Ack-Nack repetition factor           | 3            |       |       |       |
|                         | CQI Feedback (Table 5.2B.4)          | 4ms          |       |       |       |
|                         | CQI Repetition Factor (Table 5.2B.4) | 2            |       |       |       |
|                         | $A_{hs}=\beta_{hs}/\beta_c$          | 30/15        |       |       |       |

**HSPA (HSDPA & HSUPA) Setup Procedures used to establish the test signals**

The following 5 Sub-tests were completed according to Release 6 procedures in table C,11.1.3 of 3GPP TS 34.121-1 v13.  
A summary of these settings are illustrated below:

|                               | Mode                                 | HSPA          |       |       |       |             |
|-------------------------------|--------------------------------------|---------------|-------|-------|-------|-------------|
|                               | Subtest                              | 1             | 2     | 3     | 4     | 5           |
| WCDMA<br>General<br>Settings  | Loopback Mode                        | Test Mode 1   |       |       |       |             |
|                               | Rel99 RMC                            | 12.2 kbps RMC |       |       |       |             |
|                               | HSDPA FRC                            | H-Set 1       |       |       |       |             |
|                               | HSUPA Test                           | HSPA          |       |       |       |             |
|                               | Power Control Algorithm              | Algorithm 2   |       |       |       | Algorithm 1 |
|                               | $\beta_c$                            | 11/15         | 6/15  | 15/15 | 2/15  | 15/15       |
|                               | $\beta_d$                            | 15/15         | 15/15 | 9/15  | 15/15 | 0           |
|                               | $\beta_{ec}$                         | 209/225       | 12/15 | 30/15 | 2/15  | 5/15        |
|                               | $\beta_c/\beta_d$                    | 11/15         | 6/15  | 15/9  | 2/15  | -           |
|                               | $\beta_{hs}$                         | 22/15         | 12/15 | 30/15 | 4/15  | 5/15        |
|                               | $\beta_{ed}$                         | 1309/225      | 94/75 | 47/15 | 56/75 | 47/15       |
| HSDPA<br>Specific<br>Settings | CM (dB)                              | 1             | 3     | 2     | 3     | 1           |
|                               | MPR (dB)                             | 0             | 2     | 1     | 2     | 0           |
|                               | DACK                                 | 8             |       |       |       | 0           |
|                               | DNAK                                 | 8             |       |       |       | 0           |
|                               | DCQI                                 | 8             |       |       |       | 0           |
|                               | Ack-Nack repetition factor           | 3             |       |       |       |             |
|                               | CQI Feedback (Table 5.2B.4)          | 4ms           |       |       |       |             |
| HSUPA<br>Specific<br>Settings | CQI Repetition Factor (Table 5.2B.4) | 2             |       |       |       |             |
|                               | $A_{hs} = \beta_{hs}/\beta_c$        | 30/15         |       |       |       |             |
|                               | E-DPCCH                              | 6             | 8     | 8     | 5     | 0           |
|                               | DHARQ                                | 0             | 0     | 0     | 0     | 0           |
|                               | AG Index                             | 20            | 12    | 15    | 17    | 12          |
|                               | ETFCI (from 34.121 Table C.11.1.3)   | 75            | 67    | 92    | 71    | 67          |
|                               | Associated Max UL Data Rate kbps     | 242.1         | 174.9 | 482.8 | 205.8 | 308.9       |
|                               | Reference E-TFCIs                    | 5             | 5     | 2     | 5     | 1           |
|                               | Reference E-TFCI                     | 11            | 11    | 11    | 11    | 67          |
|                               | Reference E-TFCI PO                  | 4             | 4     | 4     | 4     | 18          |
|                               | Reference E-TFCI                     | 67            | 67    | 92    | 67    | 67          |
|                               | Reference E-TFCI PO                  | 18            | 18    | 18    | 18    | 18          |
|                               | Reference E-TFCI                     | 71            | 71    | 71    | 71    | 71          |
|                               | Reference E-TFCI PO                  | 23            | 23    | 23    | 23    | 23          |
|                               | Reference E-TFCI                     | 75            | 75    | 75    | 75    | 75          |
|                               | Reference E-TFCI PO                  | 26            | 26    | 26    | 26    | 26          |
|                               | Reference E-TFCI                     | 81            | 81    | 81    | 81    | 81          |
|                               | Reference E-TFCI PO                  | 27            | 27    | 27    | 27    | 27          |
|                               | Maximum Channelization Codes         | 2xSF2         |       |       |       | SF4         |

**DC-HSDPA Setup Procedures used to establish the test signals**

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS34.108 v9.5.0. A summary of these settings are illustrated below:

Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.0

**Table E.5.0: Levels for HSDPA connection setup**

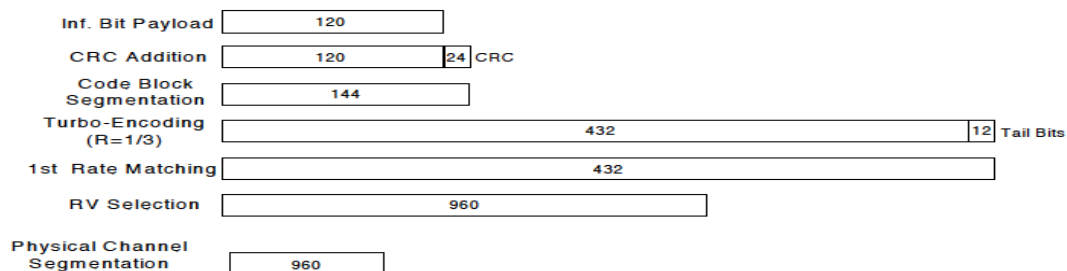
| Parameter During Connection setup | Unit | Value |
|-----------------------------------|------|-------|
| P-CPICH_Ec/Ior                    | dB   | -10   |
| P-CCPCH and SCH_Ec/Ior            | dB   | -12   |
| PICH_Ec/Ior                       | dB   | -15   |
| HS-PDSCH                          | dB   | off   |
| HS-SCCH_1                         | dB   | off   |
| DPCH_Ec/Ior                       | dB   | -5    |
| OCNS_Ec/Ior                       | dB   | -3.1  |

Call is set up as per 3GPP TS34.108 v9.5.0 sub clause 7.3.13

The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.

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

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

The following 4 Sub-tests for HSDPA were completed according to Release 8 procedures in section 5.2 of 3GPP TS34.121. A summary of subtest settings are illustrated below:

|                         | Mode                                   | HSDPA        | HSDPA | HSDPA | HSDPA |
|-------------------------|----------------------------------------|--------------|-------|-------|-------|
|                         | Subtest                                | 1            | 2     | 3     | 4     |
| WCDMA General Settings  | Loopback Mode                          | Test Mode 1  |       |       |       |
|                         | Rel99 RMC                              | 12.2kbps RMC |       |       |       |
|                         | HSDPA FRC                              | H-Set 12     |       |       |       |
|                         | Power Control Algorithm                | Algorithm2   |       |       |       |
|                         | $\beta_c$                              | 2/15         | 11/15 | 15/15 | 15/15 |
|                         | $\beta_d$                              | 15/15        | 15/15 | 8/15  | 4/15  |
|                         | $\beta_d$ (SF)                         | 64           |       |       |       |
|                         | $\beta_c/\beta_d$                      | 2/15         | 11/15 | 15/8  | 15/4  |
|                         | $\beta_{hs}$                           | 4/15         | 24/15 | 30/15 | 30/15 |
| HSDPA Specific Settings | MPR (dB)                               | 0            | 0     | 0.5   | 0.5   |
|                         | DACK                                   | 8            |       |       |       |
|                         | DNAK                                   | 8            |       |       |       |
|                         | DCQI                                   | 8            |       |       |       |
|                         | Ack-Nack Repetition factor             | 3            |       |       |       |
|                         | CQI Feedback                           | 4ms          |       |       |       |
|                         | CQI Repetition Factor                  | 2            |       |       |       |
|                         | A <sub>hs</sub> = $\beta_{hs}/\beta_c$ | 30/15        |       |       |       |

**HSPA+**

HSPA+ is only support to down link. Therefore, the RF conducted power is not measured.

**W-CDMA Band II Measured Results**

| Mode       |                            | UL Ch No. | Freq.<br>(MHz) | Maximum Average Power<br>(dBm) |     |               | Reduced Average Power (dBm)<br>Hotspot back-off |     |               | Reduced Average Power (dBm)<br>Proximity sensor back-off |     |               |
|------------|----------------------------|-----------|----------------|--------------------------------|-----|---------------|-------------------------------------------------|-----|---------------|----------------------------------------------------------|-----|---------------|
|            |                            |           |                | Measured Pwr                   | MFR | Tune-up Limit | Measured Pwr                                    | MFR | Tune-up Limit | Measured Pwr                                             | MFR | Tune-up Limit |
| Release 99 | Rel 99<br>(RMC, 12.2 kbps) | 9262      | 1852.4         | 23.7                           | N/A | 25.0          | 20.3                                            | N/A | 21.5          | 20.2                                                     | N/A | 21.5          |
|            |                            | 9400      | 1880.0         | 23.6                           |     |               | 20.2                                            |     |               | 20.1                                                     |     |               |
|            |                            | 9538      | 1907.6         | 23.5                           |     |               | 19.9                                            |     |               | 19.9                                                     |     |               |
| HSDPA      | Subtest 1                  | 9262      | 1852.4         | 22.7                           | 0   | 23.5          | 20.3                                            | 0   | 21.0          | 20.3                                                     | 0   | 21.0          |
|            |                            | 9400      | 1880.0         | 22.6                           |     |               | 20.2                                            |     |               | 20.1                                                     |     |               |
|            |                            | 9538      | 1907.6         | 22.5                           |     |               | 20.0                                            |     |               | 19.9                                                     |     |               |
|            | Subtest 2                  | 9262      | 1852.4         | 22.2                           | 0   | 23.5          | 20.3                                            | 0   | 21.0          | 20.3                                                     | 0   | 21.0          |
|            |                            | 9400      | 1880.0         | 22.1                           |     |               | 20.1                                            |     |               | 20.1                                                     |     |               |
|            |                            | 9538      | 1907.6         | 21.9                           |     |               | 19.9                                            |     |               | 19.9                                                     |     |               |
|            | Subtest 3                  | 9262      | 1852.4         | 21.7                           | 0.5 | 23.0          | 20.3                                            | 0   | 21.0          | 20.3                                                     | 0   | 21.0          |
|            |                            | 9400      | 1880.0         | 21.5                           |     |               | 20.1                                            |     |               | 20.1                                                     |     |               |
|            |                            | 9538      | 1907.6         | 21.3                           |     |               | 19.9                                            |     |               | 19.9                                                     |     |               |
|            | Subtest 4                  | 9262      | 1852.4         | 21.2                           | 0.5 | 23.0          | 20.3                                            | 0   | 21.0          | 20.3                                                     | 0   | 21.0          |
|            |                            | 9400      | 1880.0         | 21.1                           |     |               | 20.1                                            |     |               | 20.1                                                     |     |               |
|            |                            | 9538      | 1907.6         | 21.1                           |     |               | 19.9                                            |     |               | 19.9                                                     |     |               |
| HSUPA      | Subtest 1                  | 9262      | 1852.4         | 22.5                           | 0   | 24.0          | 19.3                                            | 0   | 21.0          | 19.2                                                     | 0   | 21.0          |
|            |                            | 9400      | 1880.0         | 21.5                           |     |               | 19.1                                            |     |               | 19.1                                                     |     |               |
|            |                            | 9538      | 1907.6         | 21.6                           |     |               | 18.9                                            |     |               | 18.9                                                     |     |               |
|            | Subtest 2                  | 9262      | 1852.4         | 19.6                           | 4   | 20.0          | 19.1                                            | 0   | 21.0          | 19.1                                                     | 0   | 21.0          |
|            |                            | 9400      | 1880.0         | 19.5                           |     |               | 19.1                                            |     |               | 19.1                                                     |     |               |
|            |                            | 9538      | 1907.6         | 19.4                           |     |               | 18.9                                            |     |               | 18.8                                                     |     |               |
|            | Subtest 3                  | 9262      | 1852.4         | 21.7                           | 1   | 23.0          | 19.1                                            | 0   | 21.0          | 19.1                                                     | 0   | 21.0          |
|            |                            | 9400      | 1880.0         | 21.5                           |     |               | 19.1                                            |     |               | 19.1                                                     |     |               |
|            |                            | 9538      | 1907.6         | 21.4                           |     |               | 18.8                                            |     |               | 18.8                                                     |     |               |
|            | Subtest 4                  | 9262      | 1852.4         | 19.6                           | 4   | 20.0          | 19.1                                            | 0   | 21.0          | 19.1                                                     | 0   | 21.0          |
|            |                            | 9400      | 1880.0         | 19.5                           |     |               | 19.1                                            |     |               | 19.0                                                     |     |               |
|            |                            | 9538      | 1907.6         | 19.3                           |     |               | 18.9                                            |     |               | 18.7                                                     |     |               |
|            | Subtest 5                  | 9262      | 1852.4         | 23.9                           | 0   | 24.0          | 20.3                                            | 0   | 21.0          | 20.2                                                     | 0   | 21.0          |
|            |                            | 9400      | 1880.0         | 23.7                           |     |               | 20.2                                            |     |               | 20.1                                                     |     |               |
|            |                            | 9538      | 1907.6         | 23.5                           |     |               | 19.9                                            |     |               | 19.9                                                     |     |               |
| DC-HSDPA   | Subtest 1                  | 9262      | 1852.4         | 22.9                           | 0   | 23.5          | 20.0                                            | 0   | 21.0          | 20.2                                                     | 0   | 21.0          |
|            |                            | 9400      | 1880.0         | 22.5                           |     |               | 20.0                                            |     |               | 20.0                                                     |     |               |
|            |                            | 9538      | 1907.6         | 22.6                           |     |               | 20.0                                            |     |               | 20.1                                                     |     |               |
|            | Subtest 2                  | 9262      | 1852.4         | 22.4                           | 0   | 23.5          | 20.4                                            | 0   | 21.0          | 19.8                                                     | 0   | 21.0          |
|            |                            | 9400      | 1880.0         | 22.0                           |     |               | 20.0                                            |     |               | 19.7                                                     |     |               |
|            |                            | 9538      | 1907.6         | 22.1                           |     |               | 20.0                                            |     |               | 19.7                                                     |     |               |
|            | Subtest 3                  | 9262      | 1852.4         | 20.9                           | 0.5 | 23.0          | 20.3                                            | 0   | 21.0          | 19.5                                                     | 0   | 21.0          |
|            |                            | 9400      | 1880.0         | 20.6                           |     |               | 20.0                                            |     |               | 19.6                                                     |     |               |
|            |                            | 9538      | 1907.6         | 20.6                           |     |               | 20.0                                            |     |               | 19.9                                                     |     |               |
|            | Subtest 4                  | 9262      | 1852.4         | 21.4                           | 0.5 | 23.0          | 20.4                                            | 0   | 21.0          | 19.6                                                     | 0   | 21.0          |
|            |                            | 9400      | 1880.0         | 21.1                           |     |               | 20.1                                            |     |               | 19.7                                                     |     |               |
|            |                            | 9538      | 1907.6         | 21.1                           |     |               | 20.1                                            |     |               | 19.5                                                     |     |               |

**W-CDMA Band IV Measured Results**

| Mode       |                               | UL Ch No. | Freq.<br>(MHz) | Maximum Average Power<br>(dBm) |     |               | Reduced Average Power (dBm)<br>Hotspot back-off |     |               | Reduced Average Power (dBm)<br>Proximity sensor back-off |     |               |
|------------|-------------------------------|-----------|----------------|--------------------------------|-----|---------------|-------------------------------------------------|-----|---------------|----------------------------------------------------------|-----|---------------|
|            |                               |           |                | Measured Pwr                   | MPR | Tune-up Limit | Measured Pwr                                    | MPR | Tune-up Limit | Measured Pwr                                             | MPR | Tune-up Limit |
| Release 99 | Rel 99<br>(RMC, 12.2<br>kbps) | 1312      | 1712.4         | 23.7                           | N/A | 25.0          | 20.7                                            | N/A | 22.0          | 20.9                                                     | N/A | 22.0          |
|            |                               | 1413      | 1732.6         | 23.6                           |     |               | 20.6                                            |     |               | 20.8                                                     |     |               |
|            |                               | 1513      | 1752.6         | 23.5                           |     |               | 20.4                                            |     |               | 20.5                                                     |     |               |
| HSDPA      | Subtest 1                     | 1312      | 1712.4         | 23.7                           | 0   | 24.0          | 20.7                                            | 0   | 21.0          | 20.8                                                     | 0   | 21.0          |
|            |                               | 1413      | 1732.6         | 23.6                           |     |               | 20.6                                            |     |               | 20.7                                                     |     |               |
|            |                               | 1513      | 1752.6         | 23.4                           |     |               | 20.4                                            |     |               | 20.5                                                     |     |               |
|            | Subtest 2                     | 1312      | 1712.4         | 20.6                           | 2   | 22.0          | 20.7                                            | 0   | 21.0          | 20.8                                                     | 0   | 21.0          |
|            |                               | 1413      | 1732.6         | 20.6                           |     |               | 20.6                                            |     |               | 20.7                                                     |     |               |
|            |                               | 1513      | 1752.6         | 20.4                           |     |               | 20.4                                            |     |               | 20.4                                                     |     |               |
|            | Subtest 3                     | 1312      | 1712.4         | 21.7                           | 0.5 | 23.5          | 20.7                                            | 0   | 21.0          | 20.8                                                     | 0   | 21.0          |
|            |                               | 1413      | 1732.6         | 21.6                           |     |               | 20.5                                            |     |               | 20.7                                                     |     |               |
|            |                               | 1513      | 1752.6         | 21.4                           |     |               | 20.3                                            |     |               | 20.4                                                     |     |               |
|            | Subtest 4                     | 1312      | 1712.4         | 20.7                           | 2   | 22.0          | 20.7                                            | 0   | 21.0          | 20.8                                                     | 0   | 21.0          |
|            |                               | 1413      | 1732.6         | 20.6                           |     |               | 20.6                                            |     |               | 20.7                                                     |     |               |
|            |                               | 1513      | 1752.6         | 20.4                           |     |               | 20.3                                            |     |               | 20.5                                                     |     |               |
| HSUPA      | Subtest 1                     | 1312      | 1712.4         | 21.7                           | 0   | 24.0          | 19.8                                            | 0   | 21.0          | 19.7                                                     | 0   | 21.0          |
|            |                               | 1413      | 1732.6         | 21.6                           |     |               | 19.6                                            |     |               | 19.7                                                     |     |               |
|            |                               | 1513      | 1752.6         | 21.5                           |     |               | 19.4                                            |     |               | 19.4                                                     |     |               |
|            | Subtest 2                     | 1312      | 1712.4         | 18.6                           | 4   | 20.0          | 18.7                                            | 2   | 19.0          | 18.7                                                     | 2   | 19.0          |
|            |                               | 1413      | 1732.6         | 18.5                           |     |               | 18.6                                            |     |               | 18.6                                                     |     |               |
|            |                               | 1513      | 1752.6         | 18.4                           |     |               | 18.4                                            |     |               | 18.4                                                     |     |               |
|            | Subtest 3                     | 1312      | 1712.4         | 21.6                           | 1   | 23.0          | 19.7                                            | 1   | 20.0          | 19.7                                                     | 1   | 20.0          |
|            |                               | 1413      | 1732.6         | 21.6                           |     |               | 19.6                                            |     |               | 19.5                                                     |     |               |
|            |                               | 1513      | 1752.6         | 21.4                           |     |               | 19.4                                            |     |               | 19.4                                                     |     |               |
|            | Subtest 4                     | 1312      | 1712.4         | 18.6                           | 4   | 20.0          | 18.7                                            | 2   | 19.0          | 18.7                                                     | 2   | 19.0          |
|            |                               | 1413      | 1732.6         | 18.5                           |     |               | 18.6                                            |     |               | 18.6                                                     |     |               |
|            |                               | 1513      | 1752.6         | 18.4                           |     |               | 18.4                                            |     |               | 18.4                                                     |     |               |
|            | Subtest 5                     | 1312      | 1712.4         | 23.8                           | 0   | 24.0          | 20.8                                            | 0   | 21.0          | 20.8                                                     | 0   | 21.0          |
|            |                               | 1413      | 1732.6         | 23.6                           |     |               | 20.7                                            |     |               | 20.8                                                     |     |               |
|            |                               | 1513      | 1752.6         | 23.4                           |     |               | 20.5                                            |     |               | 20.6                                                     |     |               |
| DC-HSDPA   | Subtest 1                     | 1312      | 1712.4         | 23.6                           | 0   | 24.0          | 20.7                                            | 0   | 21.0          | 20.8                                                     | 0   | 21.0          |
|            |                               | 1413      | 1732.6         | 23.5                           |     |               | 20.6                                            |     |               | 20.6                                                     |     |               |
|            |                               | 1513      | 1752.6         | 23.6                           |     |               | 20.6                                            |     |               | 20.6                                                     |     |               |
|            | Subtest 2                     | 1312      | 1712.4         | 20.6                           | 2   | 22.0          | 20.8                                            | 0   | 21.0          | 20.8                                                     | 0   | 21.0          |
|            |                               | 1413      | 1732.6         | 20.5                           |     |               | 20.5                                            |     |               | 20.6                                                     |     |               |
|            |                               | 1513      | 1752.6         | 20.5                           |     |               | 20.5                                            |     |               | 20.6                                                     |     |               |
|            | Subtest 3                     | 1312      | 1712.4         | 19.7                           | 2   | 22.0          | 19.6                                            | 0   | 21.0          | 19.7                                                     | 0   | 21.0          |
|            |                               | 1413      | 1732.6         | 19.6                           |     |               | 19.5                                            |     |               | 19.6                                                     |     |               |
|            |                               | 1513      | 1752.6         | 19.6                           |     |               | 19.6                                            |     |               | 19.6                                                     |     |               |
|            | Subtest 4                     | 1312      | 1712.4         | 20.7                           | 2   | 22.0          | 20.7                                            | 0   | 21.0          | 20.7                                                     | 0   | 21.0          |
|            |                               | 1413      | 1732.6         | 20.5                           |     |               | 20.6                                            |     |               | 20.5                                                     |     |               |
|            |                               | 1513      | 1752.6         | 20.6                           |     |               | 20.5                                            |     |               | 20.5                                                     |     |               |

**W-CDMA Band V Measured Results**

| Mode       |                               | UL Ch No. | Freq.<br>(MHz) | Maximum Average Power<br>(dBm) |     |               |
|------------|-------------------------------|-----------|----------------|--------------------------------|-----|---------------|
|            |                               |           |                | Measured Pwr                   | MPR | Tune-up Limit |
| Release 99 | Rel 99<br>(RMC, 12.2<br>kbps) | 4132      | 826.4          | 24.1                           | N/A | 25.5          |
|            |                               | 4183      | 836.6          | 24.2                           |     |               |
|            |                               | 4233      | 846.6          | 24.2                           |     |               |
| HSDPA      | Subtest 1                     | 4132      | 826.4          | 22.7                           | 0   | 23.5          |
|            |                               | 4183      | 836.6          | 22.7                           |     |               |
|            |                               | 4233      | 846.6          | 22.8                           |     |               |
|            | Subtest 2                     | 4132      | 826.4          | 22.1                           | 0   | 23.5          |
|            |                               | 4183      | 836.6          | 22.2                           |     |               |
|            |                               | 4233      | 846.6          | 22.2                           |     |               |
|            | Subtest 3                     | 4132      | 826.4          | 21.6                           | 0.5 | 23.0          |
|            |                               | 4183      | 836.6          | 21.6                           |     |               |
|            |                               | 4233      | 846.6          | 21.6                           |     |               |
|            | Subtest 4                     | 4132      | 826.4          | 21.1                           | 0.5 | 23.0          |
|            |                               | 4183      | 836.6          | 21.1                           |     |               |
|            |                               | 4233      | 846.6          | 21.1                           |     |               |
| HSUPA      | Subtest 1                     | 4132      | 826.4          | 21.6                           | 0   | 23.0          |
|            |                               | 4183      | 836.6          | 21.6                           |     |               |
|            |                               | 4233      | 846.6          | 21.6                           |     |               |
|            | Subtest 2                     | 4132      | 826.4          | 20.6                           | 2   | 21.0          |
|            |                               | 4183      | 836.6          | 20.6                           |     |               |
|            |                               | 4233      | 846.6          | 20.6                           |     |               |
|            | Subtest 3                     | 4132      | 826.4          | 20.6                           | 1   | 22.0          |
|            |                               | 4183      | 836.6          | 20.6                           |     |               |
|            |                               | 4233      | 846.6          | 20.6                           |     |               |
|            | Subtest 4                     | 4132      | 826.4          | 20.6                           | 2   | 21.0          |
|            |                               | 4183      | 836.6          | 20.6                           |     |               |
|            |                               | 4233      | 846.6          | 20.6                           |     |               |
|            | Subtest 5                     | 4132      | 826.4          | 22.7                           | 0   | 23.0          |
|            |                               | 4183      | 836.6          | 22.7                           |     |               |
|            |                               | 4233      | 846.6          | 22.8                           |     |               |
| DC-HSDPA   | Subtest 1                     | 4132      | 826.4          | 22.7                           | 0   | 23.5          |
|            |                               | 4183      | 836.6          | 22.7                           |     |               |
|            |                               | 4233      | 846.6          | 22.6                           |     |               |
|            | Subtest 2                     | 4132      | 826.4          | 22.1                           | 0   | 23.5          |
|            |                               | 4183      | 836.6          | 22.2                           |     |               |
|            |                               | 4233      | 846.6          | 22.2                           |     |               |
|            | Subtest 3                     | 4132      | 826.4          | 20.6                           | 1   | 22.5          |
|            |                               | 4183      | 836.6          | 20.6                           |     |               |
|            |                               | 4233      | 846.6          | 20.6                           |     |               |
|            | Subtest 4                     | 4132      | 826.4          | 21.1                           | 0.5 | 23.0          |
|            |                               | 4183      | 836.6          | 21.2                           |     |               |
|            |                               | 4233      | 846.6          | 21.2                           |     |               |

### 9.3 LTE

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3**

| Modulation | Channel bandwidth / Transmission bandwidth ( $N_{RB}$ ) |          |          |           |           |           | MPR (dB) |
|------------|---------------------------------------------------------|----------|----------|-----------|-----------|-----------|----------|
|            | 1.4 MHz                                                 | 3.0 MHz  | 5 MHz    | 10 MHz    | 15 MHz    | 20 MHz    |          |
| QPSK       | > 5                                                     | > 4      | > 8      | > 12      | > 16      | > 18      | $\leq 1$ |
| 16 QAM     | $\leq 5$                                                | $\leq 4$ | $\leq 8$ | $\leq 12$ | $\leq 16$ | $\leq 18$ | $\leq 1$ |
| 64 QAM     | > 5                                                     | > 4      | > 8      | > 12      | > 16      | > 18      | $\leq 2$ |
| 256 QAM    | $\leq 5$                                                | $\leq 4$ | $\leq 8$ | $\leq 12$ | $\leq 16$ | $\leq 18$ | $\leq 2$ |
|            | > 5                                                     | > 4      | > 8      | > 12      | > 16      | > 18      | $\leq 3$ |
|            | $\geq 1$                                                |          |          |           |           |           | $\leq 5$ |

The allowed A-MPR values specified below in Table 6.2.4-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS\_01".

**Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)**

| Network Signalling value | Requirements (subclause) | E-UTRA Band | Channel bandwidth (MHz) | Resources Blocks ( $N_{RB}$ ) | A-MPR (dB) |
|--------------------------|--------------------------|-------------|-------------------------|-------------------------------|------------|
| NS_01                    | 6.6.2.1.1                | Table 5.5-1 | 1.4, 3, 5, 10, 15, 20   | Table 5.6-1                   | N/A        |

#### **Maximum Output Power (Tune-up Limit) for LTE**

According to April 2015 TCB workshop, SAR test exclusion can be applied for testing overlapping LTE bands as follows :

- The maximum output power, including tolerance, for the smaller band must be  $\leq$  the larger band to qualify for the SAR test exclusion.
- The channel bandwidth and other operating parameters for the smaller band must be fully supported by the larger band.
  - LTE Band 2 (1850 – 1910 MHz) is covered by LTE Band 25 (1850 – 1915 MHz)
  - LTE Band 5 (824 – 849 MHz) is covered by LTE Band 26 (814 – 849 MHz)
  - LTE Band 4 (1710 – 1755 MHz) is covered by LTE Band 66 (1710 – 1780 MHz)
  - LTE Band 17 (704 – 716 MHz) is covered by LTE Band 12 (699 – 716 MHz)

Maximum bandwidth does not support at least three non-overlapping channels in certain channel bandwidths.

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 per KDB 941225 D05 SAR for LTE Devices.

LTE QPSK configuration has the highest maximum average output power per 3GPP standard.

SAR measurement is not required for Higher order modulations. When the highest maximum output power for Higher order modulations are  $\leq 0.5$  dB higher than the QPSK or when the reported SAR for QPSK configuration is  $\leq 1.45$  W/kg.

# 1. Max power Results

## LTE Band 12 Measured Results

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Maximum Average Power (dBm) |                    |                    |     |                  |
|-------------|--------|------------------|--------------|-----------------------------|--------------------|--------------------|-----|------------------|
|             |        |                  |              | Measured Pwr (dBm)          |                    |                    | MPR | Tune-up<br>Limit |
|             |        |                  |              |                             | 23095<br>707.5 MHz |                    |     |                  |
| 10 MHz      | QPSK   | 1                | 0            |                             | 24.4               |                    | 0.0 | 25.5             |
|             |        | 1                | 25           |                             | 24.3               |                    | 0.0 | 25.5             |
|             |        | 1                | 49           |                             | 24.3               |                    | 0.0 | 25.5             |
|             |        | 25               | 0            |                             | 23.5               |                    | 1.0 | 24.5             |
|             |        | 25               | 12           |                             | 23.4               |                    | 1.0 | 24.5             |
|             |        | 25               | 25           |                             | 23.4               |                    | 1.0 | 24.5             |
|             |        | 50               | 0            |                             | 23.4               |                    | 1.0 | 24.5             |
|             | 16QAM  | 1                | 0            |                             | 23.7               |                    | 1.0 | 24.5             |
|             |        | 1                | 25           |                             | 23.4               |                    | 1.0 | 24.5             |
|             |        | 1                | 49           |                             | 23.5               |                    | 1.0 | 24.5             |
|             |        | 25               | 0            |                             | 22.5               |                    | 2.0 | 23.5             |
|             |        | 25               | 12           |                             | 22.4               |                    | 2.0 | 23.5             |
|             |        | 25               | 25           |                             | 22.4               |                    | 2.0 | 23.5             |
|             |        | 50               | 0            |                             | 22.4               |                    | 2.0 | 23.5             |
|             | 64QAM  | 1                | 0            |                             | 22.5               |                    | 2.0 | 23.5             |
|             |        | 1                | 25           |                             | 22.5               |                    | 2.0 | 23.5             |
|             |        | 1                | 49           |                             | 22.5               |                    | 2.0 | 23.5             |
|             |        | 25               | 0            |                             | 21.5               |                    | 3.0 | 22.5             |
|             |        | 25               | 12           |                             | 21.5               |                    | 3.0 | 22.5             |
|             |        | 25               | 25           |                             | 21.5               |                    | 3.0 | 22.5             |
|             |        | 50               | 0            |                             | 21.4               |                    | 3.0 | 22.5             |
|             | 256QAM | 1                | 0            |                             | 19.7               |                    | 5.0 | 20.5             |
|             |        | 1                | 25           |                             | 19.6               |                    | 5.0 | 20.5             |
|             |        | 1                | 49           |                             | 19.6               |                    | 5.0 | 20.5             |
|             |        | 25               | 0            |                             | 19.5               |                    | 5.0 | 20.5             |
|             |        | 25               | 12           |                             | 19.5               |                    | 5.0 | 20.5             |
|             |        | 25               | 25           |                             | 19.4               |                    | 5.0 | 20.5             |
|             |        | 50               | 0            |                             | 19.5               |                    | 5.0 | 20.5             |
| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm)          |                    |                    | MPR | Tune-up<br>Limit |
|             |        |                  |              | 23035<br>701.5 MHz          | 23095<br>707.5 MHz | 23155<br>713.5 MHz |     |                  |
|             |        |                  |              |                             |                    |                    |     |                  |
| 5 MHz       | QPSK   | 1                | 0            | 24.5                        | 24.4               | 24.2               | 0.0 | 25.5             |
|             |        | 1                | 12           | 24.6                        | 24.5               | 24.2               | 0.0 | 25.5             |
|             |        | 1                | 24           | 24.6                        | 24.3               | 24.3               | 0.0 | 25.5             |
|             |        | 12               | 0            | 23.6                        | 23.4               | 23.3               | 1.0 | 24.5             |
|             |        | 12               | 7            | 23.6                        | 23.4               | 23.2               | 1.0 | 24.5             |
|             |        | 12               | 13           | 23.6                        | 23.4               | 23.3               | 1.0 | 24.5             |
|             |        | 25               | 0            | 23.6                        | 23.4               | 23.3               | 1.0 | 24.5             |
|             | 16QAM  | 1                | 0            | 23.7                        | 23.8               | 23.6               | 1.0 | 24.5             |
|             |        | 1                | 12           | 23.7                        | 23.7               | 23.7               | 1.0 | 24.5             |
|             |        | 1                | 24           | 23.7                        | 23.7               | 23.5               | 1.0 | 24.5             |
|             |        | 12               | 0            | 22.7                        | 22.6               | 22.3               | 2.0 | 23.5             |
|             |        | 12               | 7            | 22.7                        | 22.5               | 22.2               | 2.0 | 23.5             |
|             |        | 12               | 13           | 22.7                        | 22.5               | 22.2               | 2.0 | 23.5             |
|             |        | 25               | 0            | 22.6                        | 22.4               | 22.2               | 2.0 | 23.5             |
|             | 64QAM  | 1                | 0            | 22.8                        | 22.5               | 22.4               | 2.0 | 23.5             |
|             |        | 1                | 12           | 22.7                        | 22.5               | 22.5               | 2.0 | 23.5             |
|             |        | 1                | 24           | 22.8                        | 22.5               | 22.5               | 2.0 | 23.5             |
|             |        | 12               | 0            | 21.7                        | 21.4               | 21.3               | 3.0 | 22.5             |
|             |        | 12               | 7            | 21.7                        | 21.4               | 21.3               | 3.0 | 22.5             |
|             |        | 12               | 13           | 21.7                        | 21.4               | 21.3               | 3.0 | 22.5             |
|             |        | 25               | 0            | 21.6                        | 21.3               | 21.3               | 3.0 | 22.5             |
|             | 256QAM | 1                | 0            | 19.5                        | 19.5               | 19.8               | 5.0 | 20.5             |
|             |        | 1                | 12           | 19.4                        | 19.8               | 19.9               | 5.0 | 20.5             |
|             |        | 1                | 24           | 19.5                        | 19.4               | 19.8               | 5.0 | 20.5             |
|             |        | 12               | 0            | 19.6                        | 19.4               | 19.3               | 5.0 | 20.5             |
|             |        | 12               | 7            | 19.6                        | 19.4               | 19.3               | 5.0 | 20.5             |
|             |        | 12               | 13           | 19.7                        | 19.4               | 19.3               | 5.0 | 20.5             |
|             |        | 25               | 0            | 19.5                        | 19.4               | 19.3               | 5.0 | 20.5             |

**LTE Band 12 Measured Results (Continued)**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |           |           | MPR | Tune-up<br>Limit |
|-------------|--------|------------------|--------------|--------------------|-----------|-----------|-----|------------------|
|             |        |                  |              | 23025              | 23095     | 23165     |     |                  |
|             |        |                  |              | 700.5 MHz          | 707.5 MHz | 714.5 MHz |     |                  |
| 3 MHz       | QPSK   | 1                | 0            | 24.5               | 24.3      | 24.2      | 0.0 | 25.5             |
|             |        | 1                | 8            | 24.8               | 24.2      | 24.4      | 0.0 | 25.5             |
|             |        | 1                | 14           | 24.6               | 24.3      | 24.2      | 0.0 | 25.5             |
|             |        | 8                | 0            | 23.6               | 23.4      | 23.2      | 1.0 | 24.5             |
|             |        | 8                | 4            | 23.5               | 23.3      | 23.2      | 1.0 | 24.5             |
|             |        | 8                | 7            | 23.5               | 23.4      | 23.2      | 1.0 | 24.5             |
|             | 16QAM  | 15               | 0            | 23.5               | 23.4      | 23.2      | 1.0 | 24.5             |
|             |        | 1                | 0            | 23.8               | 23.7      | 23.6      | 1.0 | 24.5             |
|             |        | 1                | 8            | 23.9               | 23.8      | 23.8      | 1.0 | 24.5             |
|             |        | 1                | 14           | 23.7               | 23.7      | 23.5      | 1.0 | 24.5             |
|             |        | 8                | 0            | 22.6               | 22.5      | 22.3      | 2.0 | 23.5             |
|             |        | 8                | 4            | 22.5               | 22.4      | 22.3      | 2.0 | 23.5             |
|             | 64QAM  | 8                | 7            | 22.6               | 22.4      | 22.3      | 2.0 | 23.5             |
|             |        | 15               | 0            | 22.6               | 22.4      | 22.2      | 2.0 | 23.5             |
|             |        | 1                | 0            | 22.6               | 22.5      | 22.1      | 2.0 | 23.5             |
|             |        | 1                | 8            | 22.6               | 22.5      | 22.2      | 2.0 | 23.5             |
|             |        | 1                | 14           | 22.7               | 22.5      | 22.1      | 2.0 | 23.5             |
|             |        | 8                | 0            | 21.5               | 21.4      | 21.2      | 3.0 | 22.5             |
|             | 256QAM | 8                | 4            | 21.5               | 21.4      | 21.2      | 3.0 | 22.5             |
|             |        | 8                | 7            | 21.5               | 21.4      | 21.2      | 3.0 | 22.5             |
|             |        | 15               | 0            | 21.6               | 21.5      | 21.3      | 3.0 | 22.5             |
|             |        | 1                | 0            | 19.6               | 19.4      | 19.2      | 5.0 | 20.5             |
|             |        | 1                | 8            | 19.8               | 19.6      | 19.3      | 5.0 | 20.5             |
|             |        | 1                | 14           | 19.4               | 19.3      | 19.3      | 5.0 | 20.5             |
| 1.4 MHz     | QPSK   | 8                | 0            | 19.6               | 19.5      | 19.3      | 5.0 | 20.5             |
|             |        | 8                | 4            | 19.5               | 19.5      | 19.2      | 5.0 | 20.5             |
|             |        | 8                | 7            | 19.6               | 19.5      | 19.3      | 5.0 | 20.5             |
|             |        | 15               | 0            | 19.6               | 19.4      | 19.3      | 5.0 | 20.5             |
|             |        | 1                | 0            | 24.3               | 24.3      | 24.1      | 0.0 | 25.5             |
|             |        | 1                | 3            | 24.3               | 24.3      | 24.0      | 0.0 | 25.5             |
|             | 16QAM  | 1                | 5            | 24.4               | 24.3      | 24.1      | 0.0 | 25.5             |
|             |        | 3                | 0            | 24.4               | 24.3      | 24.1      | 0.0 | 25.5             |
|             |        | 3                | 1            | 24.5               | 24.4      | 24.1      | 0.0 | 25.5             |
|             |        | 3                | 3            | 24.5               | 24.3      | 24.2      | 0.0 | 25.5             |
|             |        | 6                | 0            | 23.5               | 23.3      | 23.2      | 1.0 | 24.5             |
|             |        | 1                | 0            | 24.0               | 23.6      | 23.3      | 1.0 | 24.5             |
|             | 64QAM  | 1                | 3            | 23.9               | 23.2      | 23.2      | 1.0 | 24.5             |
|             |        | 1                | 5            | 23.8               | 23.4      | 23.2      | 1.0 | 24.5             |
|             |        | 3                | 0            | 23.5               | 23.4      | 23.1      | 1.0 | 24.5             |
|             |        | 3                | 1            | 23.7               | 23.4      | 23.1      | 1.0 | 24.5             |
|             |        | 3                | 3            | 23.6               | 23.4      | 23.1      | 1.0 | 24.5             |
|             |        | 6                | 0            | 22.5               | 22.4      | 22.2      | 2.0 | 23.5             |
|             | 256QAM | 1                | 0            | 22.5               | 22.6      | 22.3      | 2.0 | 23.5             |
|             |        | 1                | 3            | 22.4               | 22.6      | 22.4      | 2.0 | 23.5             |
|             |        | 1                | 5            | 22.5               | 22.5      | 22.4      | 2.0 | 23.5             |
|             |        | 3                | 0            | 22.5               | 22.5      | 22.4      | 2.0 | 23.5             |
|             |        | 3                | 1            | 22.6               | 22.6      | 22.4      | 2.0 | 23.5             |
|             |        | 3                | 3            | 22.5               | 22.5      | 22.4      | 2.0 | 23.5             |
|             | QPSK   | 6                | 0            | 21.7               | 21.4      | 21.3      | 3.0 | 22.5             |
|             |        | 1                | 0            | 19.5               | 19.3      | 19.2      | 5.0 | 20.5             |
|             |        | 1                | 3            | 19.4               | 19.1      | 19.4      | 5.0 | 20.5             |
|             |        | 1                | 5            | 19.7               | 19.4      | 19.1      | 5.0 | 20.5             |
|             |        | 3                | 0            | 19.4               | 19.4      | 19.2      | 5.0 | 20.5             |
|             |        | 3                | 1            | 19.5               | 19.5      | 19.1      | 5.0 | 20.5             |
|             | 16QAM  | 3                | 3            | 19.5               | 19.4      | 19.2      | 5.0 | 20.5             |
|             |        | 6                | 0            | 19.5               | 19.4      | 19.0      | 5.0 | 20.5             |

**LTE Band 13 Measured Results**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Maximum Average Power (dBm) |                  |     |                  |
|-------------|--------|------------------|--------------|-----------------------------|------------------|-----|------------------|
|             |        |                  |              | Measured Pwr (dBm)          |                  | MPR | Tune-up<br>Limit |
|             |        |                  |              |                             | 23230<br>782 MHz |     |                  |
| 10 MHz      | QPSK   | 1                | 0            |                             | 23.9             | 0.0 | 25.5             |
|             |        | 1                | 25           |                             | 23.9             | 0.0 | 25.5             |
|             |        | 1                | 49           |                             | 23.9             | 0.0 | 25.5             |
|             |        | 25               | 0            |                             | 22.9             | 1.0 | 24.5             |
|             |        | 25               | 12           |                             | 23.0             | 1.0 | 24.5             |
|             |        | 25               | 25           |                             | 23.0             | 1.0 | 24.5             |
|             |        | 50               | 0            |                             | 23.0             | 1.0 | 24.5             |
|             | 16QAM  | 1                | 0            |                             | 23.0             | 1.0 | 24.5             |
|             |        | 1                | 25           |                             | 23.0             | 1.0 | 24.5             |
|             |        | 1                | 49           |                             | 23.1             | 1.0 | 24.5             |
|             |        | 25               | 0            |                             | 22.0             | 2.0 | 23.5             |
|             |        | 25               | 12           |                             | 22.1             | 2.0 | 23.5             |
|             |        | 25               | 25           |                             | 22.1             | 2.0 | 23.5             |
|             |        | 50               | 0            |                             | 22.0             | 2.0 | 23.5             |
|             | 64QAM  | 1                | 0            |                             | 22.0             | 2.0 | 23.5             |
|             |        | 1                | 25           |                             | 22.0             | 2.0 | 23.5             |
|             |        | 1                | 49           |                             | 22.0             | 2.0 | 23.5             |
|             |        | 25               | 0            |                             | 21.1             | 3.0 | 22.5             |
|             |        | 25               | 12           |                             | 21.1             | 3.0 | 22.5             |
|             |        | 25               | 25           |                             | 21.1             | 3.0 | 22.5             |
|             |        | 50               | 0            |                             | 21.1             | 3.0 | 22.5             |
|             | 256QAM | 1                | 0            |                             | 19.0             | 5.0 | 20.5             |
|             |        | 1                | 25           |                             | 19.0             | 5.0 | 20.5             |
|             |        | 1                | 49           |                             | 19.0             | 5.0 | 20.5             |
|             |        | 25               | 0            |                             | 19.0             | 5.0 | 20.5             |
|             |        | 25               | 12           |                             | 19.1             | 5.0 | 20.5             |
|             |        | 25               | 25           |                             | 19.1             | 5.0 | 20.5             |
|             |        | 50               | 0            |                             | 19.0             | 5.0 | 20.5             |
| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm)          |                  |     |                  |
|             |        |                  |              | Measured Pwr (dBm)          |                  | MPR | Tune-up<br>Limit |
|             |        |                  |              |                             | 23230<br>782 MHz |     |                  |
| 5 MHz       | QPSK   | 1                | 0            |                             | 23.8             | 0.0 | 25.5             |
|             |        | 1                | 12           |                             | 23.8             | 0.0 | 25.5             |
|             |        | 1                | 24           |                             | 23.9             | 0.0 | 25.5             |
|             |        | 12               | 0            |                             | 22.9             | 1.0 | 24.5             |
|             |        | 12               | 7            |                             | 22.9             | 1.0 | 24.5             |
|             |        | 12               | 13           |                             | 22.9             | 1.0 | 24.5             |
|             |        | 25               | 0            |                             | 22.9             | 1.0 | 24.5             |
|             | 16QAM  | 1                | 0            |                             | 23.3             | 1.0 | 24.5             |
|             |        | 1                | 12           |                             | 23.5             | 1.0 | 24.5             |
|             |        | 1                | 24           |                             | 23.4             | 1.0 | 24.5             |
|             |        | 12               | 0            |                             | 22.0             | 2.0 | 23.5             |
|             |        | 12               | 7            |                             | 22.0             | 2.0 | 23.5             |
|             |        | 12               | 13           |                             | 22.1             | 2.0 | 23.5             |
|             |        | 25               | 0            |                             | 21.9             | 2.0 | 23.5             |
|             | 64QAM  | 1                | 0            |                             | 22.0             | 2.0 | 23.5             |
|             |        | 1                | 12           |                             | 22.1             | 2.0 | 23.5             |
|             |        | 1                | 24           |                             | 22.1             | 2.0 | 23.5             |
|             |        | 12               | 0            |                             | 21.0             | 3.0 | 22.5             |
|             |        | 12               | 7            |                             | 21.0             | 3.0 | 22.5             |
|             |        | 12               | 13           |                             | 21.0             | 3.0 | 22.5             |
|             |        | 25               | 0            |                             | 21.0             | 3.0 | 22.5             |
|             | 256QAM | 1                | 0            |                             | 19.2             | 5.0 | 20.5             |
|             |        | 1                | 12           |                             | 19.4             | 5.0 | 20.5             |
|             |        | 1                | 24           |                             | 19.3             | 5.0 | 20.5             |
|             |        | 12               | 0            |                             | 18.9             | 5.0 | 20.5             |
|             |        | 12               | 7            |                             | 19.0             | 5.0 | 20.5             |
|             |        | 12               | 13           |                             | 19.0             | 5.0 | 20.5             |
|             |        | 25               | 0            |                             | 18.9             | 5.0 | 20.5             |

**LTE Band 25 Measured Results**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Maximum Average Power (dBm) |                     |                     |     |                  |
|-------------|--------|------------------|--------------|-----------------------------|---------------------|---------------------|-----|------------------|
|             |        |                  |              | Measured Pwr (dBm)          |                     |                     | MPR | Tune-up<br>Limit |
|             |        |                  |              | 26140<br>1860 MHz           | 26365<br>1882.5 MHz | 26590<br>1905 MHz   |     |                  |
| 20 MHz      | QPSK   | 1                | 0            | 23.1                        | 22.9                | 23.4                | 0.0 | 24.5             |
|             |        | 1                | 49           | 22.9                        | 22.8                | 23.3                | 0.0 | 24.5             |
|             |        | 1                | 99           | 23.1                        | 22.9                | 23.4                | 0.0 | 24.5             |
|             |        | 50               | 0            | 22.1                        | 21.9                | 22.4                | 1.0 | 23.5             |
|             |        | 50               | 24           | 22.1                        | 21.9                | 22.3                | 1.0 | 23.5             |
|             |        | 50               | 50           | 22.1                        | 21.9                | 22.3                | 1.0 | 23.5             |
|             | 16QAM  | 100              | 0            | 22.1                        | 21.9                | 22.3                | 1.0 | 23.5             |
|             |        | 1                | 0            | 22.5                        | 22.3                | 22.6                | 1.0 | 23.5             |
|             |        | 1                | 49           | 22.4                        | 22.2                | 22.5                | 1.0 | 23.5             |
|             |        | 1                | 99           | 22.5                        | 22.2                | 22.5                | 1.0 | 23.5             |
|             |        | 50               | 0            | 21.1                        | 20.9                | 21.3                | 2.0 | 22.5             |
|             |        | 50               | 24           | 21.1                        | 20.9                | 21.3                | 2.0 | 22.5             |
|             | 64QAM  | 50               | 50           | 21.1                        | 20.9                | 21.3                | 2.0 | 22.5             |
|             |        | 100              | 0            | 21.1                        | 20.9                | 21.3                | 2.0 | 22.5             |
|             |        | 1                | 0            | 21.5                        | 21.1                | 21.6                | 2.0 | 22.5             |
|             |        | 1                | 49           | 21.2                        | 21.0                | 21.5                | 2.0 | 22.5             |
|             |        | 1                | 99           | 21.3                        | 21.0                | 21.5                | 2.0 | 22.5             |
|             |        | 50               | 0            | 20.1                        | 19.9                | 20.3                | 3.0 | 21.5             |
| 15 MHz      | QPSK   | 50               | 24           | 20.0                        | 19.9                | 20.3                | 3.0 | 21.5             |
|             |        | 50               | 50           | 20.0                        | 19.8                | 20.3                | 3.0 | 21.5             |
|             |        | 100              | 0            | 20.0                        | 19.8                | 20.2                | 3.0 | 21.5             |
|             | 16QAM  | 1                | 0            | 19.7                        | 20.0                | 19.7                | 3.0 | 21.5             |
|             |        | 1                | 49           | 19.6                        | 19.8                | 19.6                | 3.0 | 21.5             |
|             |        | 1                | 99           | 19.6                        | 19.9                | 19.7                | 3.0 | 21.5             |
|             | 64QAM  | 50               | 0            | 18.7                        | 18.5                | 18.3                | 4.0 | 20.5             |
|             |        | 50               | 24           | 18.7                        | 18.5                | 18.3                | 4.0 | 20.5             |
|             |        | 50               | 50           | 18.7                        | 18.4                | 18.3                | 4.0 | 20.5             |
|             |        | 100              | 0            | 18.7                        | 18.5                | 18.3                | 4.0 | 20.5             |
| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm)          |                     |                     | MPR | Tune-up<br>Limit |
|             |        |                  |              | 26115<br>1857.5 MHz         | 26365<br>1882.5 MHz | 26615<br>1907.5 MHz |     |                  |
| 15 MHz      | QPSK   | 1                | 0            | 23.0                        | 22.9                | 23.4                | 0.0 | 24.5             |
|             |        | 1                | 37           | 23.0                        | 22.8                | 23.6                | 0.0 | 24.5             |
|             |        | 1                | 74           | 23.0                        | 22.8                | 23.4                | 0.0 | 24.5             |
|             |        | 36               | 0            | 22.1                        | 21.9                | 22.4                | 1.0 | 23.5             |
|             |        | 36               | 20           | 22.1                        | 21.9                | 22.4                | 1.0 | 23.5             |
|             |        | 36               | 39           | 22.1                        | 21.9                | 22.4                | 1.0 | 23.5             |
|             | 16QAM  | 75               | 0            | 22.1                        | 21.9                | 22.4                | 1.0 | 23.5             |
|             |        | 1                | 0            | 22.4                        | 22.2                | 22.8                | 1.0 | 23.5             |
|             |        | 1                | 37           | 22.5                        | 22.1                | 22.9                | 1.0 | 23.5             |
|             |        | 1                | 74           | 22.3                        | 22.1                | 22.6                | 1.0 | 23.5             |
|             |        | 36               | 0            | 21.1                        | 20.9                | 21.4                | 2.0 | 22.5             |
|             |        | 36               | 20           | 21.0                        | 20.9                | 21.4                | 2.0 | 22.5             |
|             | 64QAM  | 36               | 39           | 21.1                        | 20.9                | 21.4                | 2.0 | 22.5             |
|             |        | 75               | 0            | 21.0                        | 20.9                | 21.4                | 2.0 | 22.5             |
|             |        | 1                | 0            | 21.3                        | 21.1                | 21.3                | 2.0 | 22.5             |
|             |        | 1                | 37           | 21.1                        | 21.1                | 21.5                | 2.0 | 22.5             |
|             |        | 1                | 74           | 21.2                        | 21.0                | 21.3                | 2.0 | 22.5             |
|             |        | 36               | 0            | 20.0                        | 19.8                | 20.4                | 3.0 | 21.5             |
| 15 MHz      | 256QAM | 36               | 20           | 20.0                        | 19.8                | 20.4                | 3.0 | 21.5             |
|             |        | 36               | 39           | 19.9                        | 19.8                | 20.3                | 3.0 | 21.5             |
|             |        | 75               | 0            | 20.0                        | 19.8                | 20.3                | 3.0 | 21.5             |
|             |        | 1                | 0            | 19.8                        | 19.7                | 19.4                | 3.0 | 21.5             |
|             |        | 1                | 37           | 19.7                        | 19.8                | 19.4                | 3.0 | 21.5             |
|             |        | 1                | 74           | 19.7                        | 19.6                | 19.4                | 3.0 | 21.5             |
|             | 256QAM | 36               | 0            | 18.7                        | 18.5                | 18.4                | 4.0 | 20.5             |
|             |        | 36               | 20           | 18.6                        | 18.5                | 18.4                | 4.0 | 20.5             |
|             |        | 36               | 39           | 18.6                        | 18.5                | 18.4                | 4.0 | 20.5             |
|             |        | 75               | 0            | 18.7                        | 18.5                | 18.4                | 4.0 | 20.5             |

**LTE Band 25 Measured Results (Continued)**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |            |          | MPR | Tune-up<br>Limit |
|-------------|--------|------------------|--------------|--------------------|------------|----------|-----|------------------|
|             |        |                  |              | 26090              | 26365      | 26640    |     |                  |
|             |        |                  |              | 1855 MHz           | 1882.5 MHz | 1910 MHz |     |                  |
| 10 MHz      | QPSK   | 1                | 0            | 23.1               | 22.9       | 23.3     | 0.0 | 24.5             |
|             |        | 1                | 25           | 23.0               | 22.7       | 23.3     | 0.0 | 24.5             |
|             |        | 1                | 49           | 23.0               | 22.8       | 23.3     | 0.0 | 24.5             |
|             |        | 25               | 0            | 22.0               | 21.9       | 22.3     | 1.0 | 23.5             |
|             |        | 25               | 12           | 22.0               | 21.9       | 22.3     | 1.0 | 23.5             |
|             |        | 25               | 25           | 22.0               | 21.9       | 22.3     | 1.0 | 23.5             |
|             | 16QAM  | 50               | 0            | 22.0               | 21.9       | 22.3     | 1.0 | 23.5             |
|             |        | 1                | 0            | 22.3               | 22.2       | 22.7     | 1.0 | 23.5             |
|             |        | 1                | 25           | 22.1               | 21.9       | 22.6     | 1.0 | 23.5             |
|             |        | 1                | 49           | 22.2               | 22.1       | 22.6     | 1.0 | 23.5             |
|             |        | 25               | 0            | 21.1               | 21.0       | 21.4     | 2.0 | 22.5             |
|             |        | 25               | 12           | 21.1               | 20.9       | 21.4     | 2.0 | 22.5             |
|             | 64QAM  | 25               | 25           | 21.0               | 20.9       | 21.4     | 2.0 | 22.5             |
|             |        | 50               | 0            | 21.1               | 20.9       | 21.3     | 2.0 | 22.5             |
|             |        | 1                | 0            | 21.2               | 21.1       | 21.4     | 2.0 | 22.5             |
|             |        | 1                | 25           | 21.1               | 20.9       | 21.3     | 2.0 | 22.5             |
|             |        | 1                | 49           | 21.2               | 21.1       | 21.4     | 2.0 | 22.5             |
|             |        | 25               | 0            | 20.0               | 19.8       | 20.3     | 3.0 | 21.5             |
| 5 MHz       | QPSK   | 25               | 12           | 20.0               | 19.8       | 20.3     | 3.0 | 21.5             |
|             |        | 25               | 25           | 20.0               | 19.8       | 20.3     | 3.0 | 21.5             |
|             |        | 50               | 0            | 20.0               | 19.8       | 20.3     | 3.0 | 21.5             |
|             | 16QAM  | 1                | 0            | 19.9               | 19.7       | 19.4     | 3.0 | 21.5             |
|             |        | 1                | 25           | 19.8               | 19.6       | 19.3     | 3.0 | 21.5             |
|             |        | 1                | 49           | 19.8               | 19.7       | 19.3     | 3.0 | 21.5             |
|             | 64QAM  | 25               | 0            | 18.8               | 18.4       | 18.4     | 4.0 | 20.5             |
|             |        | 25               | 12           | 18.8               | 18.4       | 18.3     | 4.0 | 20.5             |
|             |        | 25               | 25           | 18.8               | 18.4       | 18.3     | 4.0 | 20.5             |
|             |        | 50               | 0            | 18.8               | 18.4       | 18.3     | 4.0 | 20.5             |
|             | 256QAM | 1                | 0            | 23.0               | 22.8       | 23.2     | 0.0 | 24.5             |
|             |        | 1                | 12           | 23.0               | 23.0       | 23.4     | 0.0 | 24.5             |
|             |        | 1                | 24           | 23.0               | 22.8       | 23.3     | 0.0 | 24.5             |
|             |        | 12               | 0            | 22.0               | 21.9       | 22.3     | 1.0 | 23.5             |
|             |        | 12               | 7            | 22.0               | 21.8       | 22.3     | 1.0 | 23.5             |
|             |        | 12               | 13           | 22.0               | 21.9       | 22.3     | 1.0 | 23.5             |
| 5 MHz       | QPSK   | 25               | 0            | 22.0               | 21.9       | 22.3     | 1.0 | 23.5             |
|             |        | 1                | 0            | 22.6               | 22.2       | 22.7     | 1.0 | 23.5             |
|             |        | 1                | 12           | 22.7               | 22.2       | 22.5     | 1.0 | 23.5             |
|             |        | 1                | 24           | 22.5               | 22.2       | 22.6     | 1.0 | 23.5             |
|             | 16QAM  | 12               | 0            | 21.1               | 20.9       | 21.4     | 2.0 | 22.5             |
|             |        | 12               | 7            | 21.0               | 20.9       | 21.4     | 2.0 | 22.5             |
|             |        | 12               | 13           | 21.0               | 20.9       | 21.4     | 2.0 | 22.5             |
|             |        | 25               | 0            | 21.0               | 20.9       | 21.3     | 2.0 | 22.5             |
|             | 64QAM  | 1                | 0            | 21.3               | 20.9       | 21.4     | 2.0 | 22.5             |
|             |        | 1                | 12           | 21.3               | 21.0       | 21.4     | 2.0 | 22.5             |
|             |        | 1                | 24           | 21.3               | 20.9       | 21.4     | 2.0 | 22.5             |
|             |        | 12               | 0            | 20.0               | 19.8       | 20.3     | 3.0 | 21.5             |
|             |        | 12               | 7            | 20.0               | 19.8       | 20.2     | 3.0 | 21.5             |
|             |        | 12               | 13           | 20.0               | 19.8       | 20.3     | 3.0 | 21.5             |
| 5 MHz       | QPSK   | 25               | 0            | 19.9               | 19.8       | 20.2     | 3.0 | 21.5             |
|             |        | 1                | 0            | 19.8               | 19.7       | 19.2     | 3.0 | 21.5             |
|             |        | 1                | 12           | 20.0               | 19.8       | 19.2     | 3.0 | 21.5             |
|             |        | 1                | 24           | 19.8               | 19.7       | 19.3     | 3.0 | 21.5             |
|             | 16QAM  | 12               | 0            | 18.8               | 18.4       | 18.3     | 4.0 | 20.5             |
|             |        | 12               | 7            | 18.8               | 18.4       | 18.3     | 4.0 | 20.5             |
|             |        | 12               | 13           | 18.8               | 18.4       | 18.3     | 4.0 | 20.5             |
|             |        | 25               | 0            | 18.9               | 18.3       | 18.3     | 4.0 | 20.5             |
|             | 64QAM  | 1                | 0            | 21.3               | 20.9       | 21.4     | 2.0 | 22.5             |
|             |        | 1                | 12           | 21.3               | 21.0       | 21.4     | 2.0 | 22.5             |
|             |        | 1                | 24           | 21.3               | 20.9       | 21.4     | 2.0 | 22.5             |
|             |        | 12               | 0            | 20.0               | 19.8       | 20.3     | 3.0 | 21.5             |
|             |        | 12               | 7            | 20.0               | 19.8       | 20.2     | 3.0 | 21.5             |
|             |        | 12               | 13           | 20.0               | 19.8       | 20.3     | 3.0 | 21.5             |
| 5 MHz       | QPSK   | 25               | 0            | 19.9               | 19.8       | 20.2     | 3.0 | 21.5             |
|             |        | 1                | 0            | 19.8               | 19.7       | 19.2     | 3.0 | 21.5             |
|             |        | 1                | 12           | 20.0               | 19.8       | 19.2     | 3.0 | 21.5             |
|             |        | 1                | 24           | 19.8               | 19.7       | 19.3     | 3.0 | 21.5             |
|             | 16QAM  | 12               | 0            | 18.8               | 18.4       | 18.3     | 4.0 | 20.5             |
|             |        | 12               | 7            | 18.8               | 18.4       | 18.3     | 4.0 | 20.5             |
|             |        | 12               | 13           | 18.8               | 18.4       | 18.3     | 4.0 | 20.5             |
|             |        | 25               | 0            | 18.9               | 18.3       | 18.3     | 4.0 | 20.5             |
|             | 64QAM  | 1                | 0            | 21.3               | 20.9       | 21.4     | 2.0 | 22.5             |
|             |        | 1                | 12           | 21.3               | 21.0       | 21.4     | 2.0 | 22.5             |
|             |        | 1                | 24           | 21.3               | 20.9       | 21.4     | 2.0 | 22.5             |
|             |        | 12               | 0            | 20.0               | 19.8       | 20.3     | 3.0 | 21.5             |
|             |        | 12               | 7            | 20.0               | 19.8       | 20.2     | 3.0 | 21.5             |
|             |        | 12               | 13           | 20.0               | 19.8       | 20.3     | 3.0 | 21.5             |
| 5 MHz       | QPSK   | 25               | 0            | 19.9               | 19.8       | 20.2     | 3.0 | 21.5             |
|             |        | 1                | 0            | 19.8               | 19.7       | 19.2     | 3.0 | 21.5             |
|             |        | 1                | 12           | 20.0               | 19.8       | 19.2     | 3.0 | 21.5             |
|             |        | 1                | 24           | 19.8               | 19.7       | 19.3     | 3.0 | 21.5             |
|             | 16QAM  | 12               | 0            | 18.8               | 18.4       | 18.3     | 4.0 | 20.5             |
|             |        | 12               | 7            | 18.8               | 18.4       | 18.3     | 4.0 | 20.5             |
|             |        | 12               | 13           | 18.8               | 18.4       | 18.3     | 4.0 | 20.5             |
|             |        | 25               | 0            | 18.9               | 18.3       | 18.3     | 4.0 | 20.5             |
|             | 64QAM  | 1                | 0            | 21.3               | 20.9       | 21.4     | 2.0 | 22.5             |
|             |        | 1                | 12           | 21.3               | 21.0       | 21.4     | 2.0 | 22.5             |
|             |        | 1                | 24           | 21.3               | 20.9       | 21.4     | 2.0 | 22.5             |
|             |        | 12               | 0            | 20.0               | 19.8       | 20.3     | 3.0 | 21.5             |
|             |        | 12               | 7            | 20.0               | 19.8       | 20.2     | 3.0 | 21.5             |
|             |        | 12               | 13           | 20.0               | 19.8       | 20.3     | 3.0 | 21.5             |

**LTE Band 25 Measured Results (Continued)**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |            |            | MPR | Tune-up<br>Limit |
|-------------|--------|------------------|--------------|--------------------|------------|------------|-----|------------------|
|             |        |                  |              | 26055              | 26365      | 26675      |     |                  |
|             |        |                  |              | 1851.5 MHz         | 1882.5 MHz | 1913.5 MHz |     |                  |
| 3 MHz       | QPSK   | 1                | 0            | 23.0               | 22.8       | 23.2       | 0.0 | 24.5             |
|             |        | 1                | 8            | 23.0               | 22.8       | 23.5       | 0.0 | 24.5             |
|             |        | 1                | 14           | 23.0               | 22.8       | 23.3       | 0.0 | 24.5             |
|             |        | 8                | 0            | 22.0               | 21.8       | 22.3       | 1.0 | 23.5             |
|             |        | 8                | 4            | 21.9               | 21.8       | 22.3       | 1.0 | 23.5             |
|             |        | 8                | 7            | 22.0               | 21.8       | 22.2       | 1.0 | 23.5             |
|             |        | 15               | 0            | 22.0               | 21.8       | 22.2       | 1.0 | 23.5             |
|             | 16QAM  | 1                | 0            | 22.1               | 22.0       | 22.5       | 1.0 | 23.5             |
|             |        | 1                | 8            | 22.1               | 22.1       | 22.5       | 1.0 | 23.5             |
|             |        | 1                | 14           | 22.2               | 22.1       | 22.5       | 1.0 | 23.5             |
|             |        | 8                | 0            | 21.0               | 20.9       | 21.4       | 2.0 | 22.5             |
|             |        | 8                | 4            | 21.0               | 20.9       | 21.4       | 2.0 | 22.5             |
|             |        | 8                | 7            | 21.0               | 20.9       | 21.3       | 2.0 | 22.5             |
|             |        | 15               | 0            | 21.0               | 20.8       | 21.2       | 2.0 | 22.5             |
|             | 64QAM  | 1                | 0            | 21.2               | 21.1       | 21.1       | 2.0 | 22.5             |
|             |        | 1                | 8            | 21.3               | 20.9       | 21.4       | 2.0 | 22.5             |
|             |        | 1                | 14           | 21.1               | 21.2       | 21.3       | 2.0 | 22.5             |
|             |        | 8                | 0            | 19.9               | 19.8       | 20.2       | 3.0 | 21.5             |
|             |        | 8                | 4            | 19.9               | 19.8       | 20.2       | 3.0 | 21.5             |
|             |        | 8                | 7            | 19.9               | 19.8       | 20.2       | 3.0 | 21.5             |
|             |        | 15               | 0            | 19.9               | 19.7       | 20.3       | 3.0 | 21.5             |
|             | 256QAM | 1                | 0            | 19.7               | 19.6       | 19.2       | 3.0 | 21.5             |
|             |        | 1                | 8            | 20.1               | 19.8       | 19.2       | 3.0 | 21.5             |
|             |        | 1                | 14           | 19.9               | 19.6       | 19.2       | 3.0 | 21.5             |
|             |        | 8                | 0            | 18.9               | 18.4       | 18.2       | 4.0 | 20.5             |
|             |        | 8                | 4            | 18.8               | 18.4       | 18.2       | 4.0 | 20.5             |
|             |        | 8                | 7            | 18.9               | 18.5       | 18.2       | 4.0 | 20.5             |
|             |        | 15               | 0            | 18.9               | 18.4       | 18.2       | 4.0 | 20.5             |
| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |            |            | MPR | Tune-up<br>Limit |
|             |        |                  |              | 26047              | 26365      | 26683      |     |                  |
|             |        |                  |              | 1850.7 MHz         | 1882.5 MHz | 1914.3 MHz |     |                  |
| 1.4 MHz     | QPSK   | 1                | 0            | 22.8               | 22.7       | 23.2       | 0.0 | 24.5             |
|             |        | 1                | 3            | 22.8               | 22.7       | 23.0       | 0.0 | 24.5             |
|             |        | 1                | 5            | 22.9               | 22.8       | 23.2       | 0.0 | 24.5             |
|             |        | 3                | 0            | 22.8               | 22.7       | 23.1       | 0.0 | 24.5             |
|             |        | 3                | 1            | 22.8               | 22.8       | 23.2       | 0.0 | 24.5             |
|             |        | 3                | 3            | 22.9               | 22.7       | 23.1       | 0.0 | 24.5             |
|             |        | 6                | 0            | 21.9               | 21.8       | 22.2       | 1.0 | 23.5             |
|             | 16QAM  | 1                | 0            | 22.1               | 22.2       | 22.3       | 1.0 | 23.5             |
|             |        | 1                | 3            | 22.2               | 22.0       | 22.2       | 1.0 | 23.5             |
|             |        | 1                | 5            | 22.0               | 22.1       | 22.3       | 1.0 | 23.5             |
|             |        | 3                | 0            | 22.0               | 21.8       | 22.2       | 1.0 | 23.5             |
|             |        | 3                | 1            | 22.0               | 21.9       | 22.1       | 1.0 | 23.5             |
|             |        | 3                | 3            | 22.0               | 21.8       | 22.2       | 1.0 | 23.5             |
|             | 64QAM  | 6                | 0            | 21.0               | 20.8       | 21.2       | 2.0 | 22.5             |
|             |        | 1                | 0            | 21.0               | 21.0       | 21.3       | 2.0 | 22.5             |
|             |        | 1                | 3            | 21.2               | 20.8       | 21.3       | 2.0 | 22.5             |
|             |        | 1                | 5            | 21.1               | 21.0       | 21.4       | 2.0 | 22.5             |
|             |        | 3                | 0            | 21.0               | 20.7       | 21.0       | 2.0 | 22.5             |
|             |        | 3                | 1            | 21.0               | 20.8       | 21.0       | 2.0 | 22.5             |
|             |        | 3                | 3            | 21.0               | 20.7       | 21.1       | 2.0 | 22.5             |
|             | 256QAM | 6                | 0            | 19.9               | 19.9       | 20.2       | 3.0 | 21.5             |
|             |        | 1                | 0            | 19.8               | 19.4       | 19.1       | 4.0 | 20.5             |
|             |        | 1                | 3            | 19.6               | 19.5       | 19.2       | 4.0 | 20.5             |
|             |        | 1                | 5            | 19.8               | 19.4       | 19.1       | 4.0 | 20.5             |
|             |        | 3                | 0            | 19.6               | 19.2       | 19.1       | 4.0 | 20.5             |
|             |        | 3                | 1            | 19.7               | 19.3       | 19.2       | 4.0 | 20.5             |
|             |        | 3                | 3            | 19.6               | 19.2       | 19.1       | 4.0 | 20.5             |
|             |        | 6                | 0            | 18.7               | 18.4       | 18.2       | 4.0 | 20.5             |

**LTE Band 26 Measured Results**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Maximum Average Power (dBm) |                    |                  |     |                  |
|-------------|--------|------------------|--------------|-----------------------------|--------------------|------------------|-----|------------------|
|             |        |                  |              | Measured Pwr (dBm)          |                    |                  | MPR | Tune-up<br>Limit |
|             |        |                  |              |                             | 26865<br>831.5 MHz |                  |     |                  |
| 15 MHz      | QPSK   | 1                | 0            |                             | 23.9               |                  | 0.0 | 25.5             |
|             |        | 1                | 37           |                             | 23.6               |                  | 0.0 | 25.5             |
|             |        | 1                | 74           |                             | 23.7               |                  | 0.0 | 25.5             |
|             |        | 36               | 0            |                             | 21.3               |                  | 3.0 | 22.5             |
|             |        | 36               | 20           |                             | 21.3               |                  | 3.0 | 22.5             |
|             |        | 36               | 39           |                             | 21.3               |                  | 3.0 | 22.5             |
|             |        | 75               | 0            |                             | 21.3               |                  | 3.0 | 22.5             |
|             | 16QAM  | 1                | 0            |                             | 21.8               |                  | 3.0 | 22.5             |
|             |        | 1                | 37           |                             | 21.8               |                  | 3.0 | 22.5             |
|             |        | 1                | 74           |                             | 21.7               |                  | 3.0 | 22.5             |
|             |        | 36               | 0            |                             | 20.4               |                  | 4.0 | 21.5             |
|             |        | 36               | 20           |                             | 20.3               |                  | 4.0 | 21.5             |
|             |        | 36               | 39           |                             | 20.3               |                  | 4.0 | 21.5             |
|             |        | 75               | 0            |                             | 20.3               |                  | 4.0 | 21.5             |
|             | 64QAM  | 1                | 0            |                             | 20.6               |                  | 4.0 | 21.5             |
|             |        | 1                | 37           |                             | 20.6               |                  | 4.0 | 21.5             |
|             |        | 1                | 74           |                             | 20.6               |                  | 4.0 | 21.5             |
|             |        | 36               | 0            |                             | 19.3               |                  | 5.0 | 20.5             |
|             |        | 36               | 20           |                             | 19.2               |                  | 5.0 | 20.5             |
|             |        | 36               | 39           |                             | 19.2               |                  | 5.0 | 20.5             |
|             |        | 75               | 0            |                             | 19.2               |                  | 5.0 | 20.5             |
|             | 256QAM | 1                | 0            |                             | 19.5               |                  | 5.0 | 20.5             |
|             |        | 1                | 37           |                             | 19.6               |                  | 5.0 | 20.5             |
|             |        | 1                | 74           |                             | 19.4               |                  | 5.0 | 20.5             |
|             |        | 36               | 0            |                             | 18.4               |                  | 6.0 | 19.5             |
|             |        | 36               | 20           |                             | 18.4               |                  | 6.0 | 19.5             |
|             |        | 36               | 39           |                             | 18.3               |                  | 6.0 | 19.5             |
|             |        | 75               | 0            |                             | 18.4               |                  | 6.0 | 19.5             |
| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm)          |                    |                  | MPR | Tune-up<br>Limit |
|             |        |                  |              | 26740<br>819 MHz            | 26865<br>831.5 MHz | 26990<br>844 MHz |     |                  |
|             |        |                  |              |                             |                    |                  |     |                  |
| 10 MHz      | QPSK   | 1                | 0            | 23.3                        | 23.8               | 23.9             | 0.0 | 25.5             |
|             |        | 1                | 25           | 23.3                        | 23.7               | 23.8             | 0.0 | 25.5             |
|             |        | 1                | 49           | 23.3                        | 23.7               | 23.9             | 0.0 | 25.5             |
|             |        | 25               | 0            | 20.8                        | 21.3               | 21.4             | 3.0 | 22.5             |
|             |        | 25               | 12           | 20.8                        | 21.3               | 21.4             | 3.0 | 22.5             |
|             |        | 25               | 25           | 20.8                        | 21.2               | 21.4             | 3.0 | 22.5             |
|             |        | 50               | 0            | 20.8                        | 21.3               | 21.4             | 3.0 | 22.5             |
|             | 16QAM  | 1                | 0            | 20.9                        | 21.5               | 21.7             | 3.0 | 22.5             |
|             |        | 1                | 25           | 20.7                        | 21.2               | 21.7             | 3.0 | 22.5             |
|             |        | 1                | 49           | 20.9                        | 21.4               | 21.8             | 3.0 | 22.5             |
|             |        | 25               | 0            | 19.9                        | 20.4               | 20.4             | 4.0 | 21.5             |
|             |        | 25               | 12           | 19.9                        | 20.4               | 20.4             | 4.0 | 21.5             |
|             |        | 25               | 25           | 19.9                        | 20.4               | 20.5             | 4.0 | 21.5             |
|             |        | 50               | 0            | 19.9                        | 20.3               | 20.4             | 4.0 | 21.5             |
|             | 64QAM  | 1                | 0            | 19.8                        | 20.5               | 20.3             | 4.0 | 21.5             |
|             |        | 1                | 25           | 19.8                        | 20.5               | 20.3             | 4.0 | 21.5             |
|             |        | 1                | 49           | 19.9                        | 20.5               | 20.3             | 4.0 | 21.5             |
|             |        | 25               | 0            | 18.9                        | 19.3               | 19.4             | 5.0 | 20.5             |
|             |        | 25               | 12           | 18.9                        | 19.3               | 19.4             | 5.0 | 20.5             |
|             |        | 25               | 25           | 18.9                        | 19.3               | 19.5             | 5.0 | 20.5             |
|             |        | 50               | 0            | 18.8                        | 19.3               | 19.4             | 5.0 | 20.5             |
|             | 256QAM | 1                | 0            | 18.7                        | 19.4               | 19.3             | 5.0 | 20.5             |
|             |        | 1                | 25           | 18.7                        | 19.4               | 19.3             | 5.0 | 20.5             |
|             |        | 1                | 49           | 18.8                        | 19.3               | 19.4             | 5.0 | 20.5             |
|             |        | 25               | 0            | 17.9                        | 18.4               | 18.4             | 6.0 | 19.5             |
|             |        | 25               | 12           | 17.9                        | 18.4               | 18.4             | 6.0 | 19.5             |
|             |        | 25               | 25           | 17.9                        | 18.3               | 18.5             | 6.0 | 19.5             |
|             |        | 50               | 0            | 17.8                        | 18.3               | 18.4             | 6.0 | 19.5             |

**LTE Band 26 Measured Results (Continued)**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |           |           | MPR | Tune-up<br>Limit |
|-------------|--------|------------------|--------------|--------------------|-----------|-----------|-----|------------------|
|             |        |                  |              | 26715              | 26865     | 27015     |     |                  |
|             |        |                  |              | 816.5 MHz          | 831.5 MHz | 846.5 MHz |     |                  |
| 5 MHz       | QPSK   | 1                | 0            | 23.1               | 23.8      | 23.8      | 0.0 | 25.5             |
|             |        | 1                | 12           | 23.1               | 23.7      | 24.0      | 0.0 | 25.5             |
|             |        | 1                | 24           | 23.2               | 23.7      | 23.9      | 0.0 | 25.5             |
|             |        | 12               | 0            | 20.7               | 21.3      | 21.4      | 3.0 | 22.5             |
|             |        | 12               | 7            | 20.7               | 21.3      | 21.4      | 3.0 | 22.5             |
|             |        | 12               | 13           | 20.8               | 21.3      | 21.4      | 3.0 | 22.5             |
|             |        | 25               | 0            | 20.7               | 21.3      | 21.4      | 3.0 | 22.5             |
|             | 16QAM  | 1                | 0            | 21.0               | 21.6      | 21.8      | 3.0 | 22.5             |
|             |        | 1                | 12           | 21.1               | 21.6      | 21.6      | 3.0 | 22.5             |
|             |        | 1                | 24           | 21.1               | 21.5      | 21.8      | 3.0 | 22.5             |
|             |        | 12               | 0            | 19.7               | 20.3      | 20.5      | 4.0 | 21.5             |
|             |        | 12               | 7            | 19.7               | 20.3      | 20.6      | 4.0 | 21.5             |
|             |        | 12               | 13           | 19.7               | 20.3      | 20.6      | 4.0 | 21.5             |
|             |        | 25               | 0            | 19.8               | 20.3      | 20.5      | 4.0 | 21.5             |
|             | 64QAM  | 1                | 0            | 20.0               | 20.4      | 20.5      | 4.0 | 21.5             |
|             |        | 1                | 12           | 20.0               | 20.4      | 20.5      | 4.0 | 21.5             |
|             |        | 1                | 24           | 20.1               | 20.4      | 20.5      | 4.0 | 21.5             |
|             |        | 12               | 0            | 18.8               | 19.3      | 19.4      | 5.0 | 20.5             |
|             |        | 12               | 7            | 18.8               | 19.2      | 19.4      | 5.0 | 20.5             |
|             |        | 12               | 13           | 18.8               | 19.3      | 19.4      | 5.0 | 20.5             |
|             |        | 25               | 0            | 18.8               | 19.3      | 19.3      | 5.0 | 20.5             |
|             | 256QAM | 1                | 0            | 18.5               | 19.2      | 19.8      | 5.0 | 20.5             |
|             |        | 1                | 12           | 18.6               | 19.3      | 20.1      | 5.0 | 20.5             |
|             |        | 1                | 24           | 18.5               | 19.1      | 19.9      | 5.0 | 20.5             |
|             |        | 12               | 0            | 17.8               | 18.3      | 18.4      | 6.0 | 19.5             |
|             |        | 12               | 7            | 17.8               | 18.3      | 18.4      | 6.0 | 19.5             |
|             |        | 12               | 13           | 17.8               | 18.3      | 18.5      | 6.0 | 19.5             |
|             |        | 25               | 0            | 17.8               | 18.3      | 18.4      | 6.0 | 19.5             |
| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |           |           | MPR | Tune-up<br>Limit |
|             |        |                  |              | 26705              | 26865     | 27025     |     |                  |
|             |        |                  |              | 815.5 MHz          | 831.5 MHz | 847.5 MHz |     |                  |
| 3 MHz       | QPSK   | 1                | 0            | 23.2               | 23.8      | 23.8      | 0.0 | 25.5             |
|             |        | 1                | 8            | 23.4               | 24.0      | 23.8      | 0.0 | 25.5             |
|             |        | 1                | 14           | 23.2               | 23.8      | 23.8      | 0.0 | 25.5             |
|             |        | 8                | 0            | 20.7               | 21.2      | 21.4      | 3.0 | 22.5             |
|             |        | 8                | 4            | 20.7               | 21.2      | 21.4      | 3.0 | 22.5             |
|             |        | 8                | 7            | 20.7               | 21.2      | 21.4      | 3.0 | 22.5             |
|             |        | 15               | 0            | 20.7               | 21.3      | 21.4      | 3.0 | 22.5             |
|             | 16QAM  | 1                | 0            | 21.1               | 21.4      | 21.7      | 3.0 | 22.5             |
|             |        | 1                | 8            | 21.4               | 21.6      | 22.0      | 3.0 | 22.5             |
|             |        | 1                | 14           | 21.2               | 21.5      | 21.8      | 3.0 | 22.5             |
|             |        | 8                | 0            | 19.7               | 20.3      | 20.5      | 4.0 | 21.5             |
|             |        | 8                | 4            | 19.8               | 20.3      | 20.5      | 4.0 | 21.5             |
|             |        | 8                | 7            | 19.7               | 20.3      | 20.5      | 4.0 | 21.5             |
|             |        | 15               | 0            | 19.7               | 20.3      | 20.4      | 4.0 | 21.5             |
|             | 64QAM  | 1                | 0            | 19.8               | 20.4      | 20.5      | 4.0 | 21.5             |
|             |        | 1                | 8            | 20.1               | 20.4      | 20.5      | 4.0 | 21.5             |
|             |        | 1                | 14           | 19.9               | 20.4      | 20.6      | 4.0 | 21.5             |
|             |        | 8                | 0            | 18.7               | 19.2      | 19.4      | 5.0 | 20.5             |
|             |        | 8                | 4            | 18.8               | 19.2      | 19.4      | 5.0 | 20.5             |
|             |        | 8                | 7            | 18.7               | 19.2      | 19.4      | 5.0 | 20.5             |
|             |        | 15               | 0            | 18.8               | 19.2      | 19.3      | 5.0 | 20.5             |
|             | 256QAM | 1                | 0            | 18.7               | 19.4      | 19.7      | 5.0 | 20.5             |
|             |        | 1                | 8            | 18.7               | 19.2      | 19.7      | 5.0 | 20.5             |
|             |        | 1                | 14           | 18.8               | 19.4      | 19.7      | 5.0 | 20.5             |
|             |        | 8                | 0            | 17.7               | 18.3      | 18.4      | 6.0 | 19.5             |
|             |        | 8                | 4            | 17.7               | 18.2      | 18.4      | 6.0 | 19.5             |
|             |        | 8                | 7            | 17.7               | 18.3      | 18.4      | 6.0 | 19.5             |
|             |        | 15               | 0            | 17.8               | 18.3      | 18.4      | 6.0 | 19.5             |

**LTE Band 26 Measured Results (Continued)**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |           |           | MPR | Tune-up<br>Limit |
|-------------|--------|------------------|--------------|--------------------|-----------|-----------|-----|------------------|
|             |        |                  |              | 26697              | 26865     | 27033     |     |                  |
|             |        |                  |              | 814.7 MHz          | 831.5 MHz | 848.3 MHz |     |                  |
| 1.4 MHz     | QPSK   | 1                | 0            | 23.2               | 23.7      | 23.9      | 0.0 | 25.5             |
|             |        | 1                | 3            | 23.0               | 23.7      | 23.7      | 0.0 | 25.5             |
|             |        | 1                | 5            | 23.2               | 23.7      | 23.9      | 0.0 | 25.5             |
|             |        | 3                | 0            | 23.1               | 23.7      | 23.8      | 0.0 | 25.5             |
|             |        | 3                | 1            | 23.1               | 23.7      | 23.8      | 0.0 | 25.5             |
|             |        | 3                | 3            | 23.2               | 23.7      | 23.8      | 0.0 | 25.5             |
|             |        | 6                | 0            | 20.6               | 21.2      | 21.4      | 3.0 | 22.5             |
|             | 16QAM  | 1                | 0            | 20.8               | 21.3      | 21.8      | 3.0 | 22.5             |
|             |        | 1                | 3            | 20.7               | 21.3      | 21.8      | 3.0 | 22.5             |
|             |        | 1                | 5            | 20.9               | 21.3      | 21.8      | 3.0 | 22.5             |
|             |        | 3                | 0            | 20.7               | 21.4      | 21.5      | 3.0 | 22.5             |
|             |        | 3                | 1            | 20.7               | 21.3      | 21.7      | 3.0 | 22.5             |
|             |        | 3                | 3            | 20.7               | 21.4      | 21.5      | 3.0 | 22.5             |
|             |        | 6                | 0            | 19.7               | 20.3      | 20.3      | 4.0 | 21.5             |
|             | 64QAM  | 1                | 0            | 19.9               | 20.4      | 20.5      | 4.0 | 21.5             |
|             |        | 1                | 3            | 19.9               | 20.3      | 20.5      | 4.0 | 21.5             |
|             |        | 1                | 5            | 19.8               | 20.4      | 20.5      | 4.0 | 21.5             |
|             |        | 3                | 0            | 19.7               | 20.4      | 20.5      | 4.0 | 21.5             |
|             |        | 3                | 1            | 19.8               | 20.4      | 20.5      | 4.0 | 21.5             |
|             |        | 3                | 3            | 19.7               | 20.3      | 20.5      | 4.0 | 21.5             |
|             |        | 6                | 0            | 18.8               | 19.2      | 19.3      | 5.0 | 20.5             |
|             | 256QAM | 1                | 0            | 18.7               | 19.3      | 19.2      | 5.0 | 20.5             |
|             |        | 1                | 3            | 18.6               | 18.9      | 19.3      | 5.0 | 20.5             |
|             |        | 1                | 5            | 18.8               | 19.2      | 19.2      | 5.0 | 20.5             |
|             |        | 3                | 0            | 18.6               | 19.3      | 19.3      | 5.0 | 20.5             |
|             |        | 3                | 1            | 18.6               | 19.3      | 19.4      | 5.0 | 20.5             |
|             |        | 3                | 3            | 18.6               | 19.2      | 19.3      | 5.0 | 20.5             |
|             |        | 6                | 0            | 17.6               | 18.2      | 18.3      | 6.0 | 19.5             |

**LTE Band 66 Measured Results**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Maximum Average Power (dBm) |          |          |     |                  |
|-------------|--------|------------------|--------------|-----------------------------|----------|----------|-----|------------------|
|             |        |                  |              | Measured Pwr (dBm)          |          |          | MPR | Tune-up<br>Limit |
|             |        |                  |              | 132072                      | 132322   | 132572   |     |                  |
|             |        |                  |              | 1720 MHz                    | 1745 MHz | 1770 MHz |     |                  |
| 20 MHz      | QPSK   | 1                | 0            | 22.7                        | 23.1     | 22.8     | 0.0 | 24.5             |
|             |        | 1                | 49           | 22.6                        | 23.0     | 22.7     | 0.0 | 24.5             |
|             |        | 1                | 99           | 22.6                        | 23.0     | 22.8     | 0.0 | 24.5             |
|             |        | 50               | 0            | 21.7                        | 22.1     | 21.9     | 1.0 | 23.5             |
|             |        | 50               | 24           | 21.6                        | 22.0     | 21.9     | 1.0 | 23.5             |
|             |        | 50               | 50           | 21.6                        | 22.0     | 21.9     | 1.0 | 23.5             |
|             | 16QAM  | 100              | 0            | 21.7                        | 22.0     | 21.8     | 1.0 | 23.5             |
|             |        | 1                | 0            | 22.0                        | 22.4     | 22.3     | 1.0 | 23.5             |
|             |        | 1                | 49           | 21.9                        | 22.1     | 22.1     | 1.0 | 23.5             |
|             |        | 1                | 99           | 22.0                        | 22.4     | 22.3     | 1.0 | 23.5             |
|             |        | 50               | 0            | 20.6                        | 21.0     | 20.9     | 2.0 | 22.5             |
|             |        | 50               | 24           | 20.6                        | 21.0     | 20.8     | 2.0 | 22.5             |
|             | 64QAM  | 50               | 50           | 20.6                        | 21.0     | 20.8     | 2.0 | 22.5             |
|             |        | 100              | 0            | 20.6                        | 21.0     | 20.8     | 2.0 | 22.5             |
|             |        | 1                | 0            | 20.9                        | 21.2     | 21.2     | 2.0 | 22.5             |
|             |        | 1                | 49           | 20.8                        | 21.0     | 21.0     | 2.0 | 22.5             |
|             |        | 1                | 99           | 20.9                        | 21.1     | 21.1     | 2.0 | 22.5             |
|             |        | 50               | 0            | 19.5                        | 20.0     | 19.8     | 3.0 | 21.5             |
| 15 MHz      | QPSK   | 50               | 24           | 19.5                        | 19.9     | 19.8     | 3.0 | 21.5             |
|             |        | 50               | 50           | 19.5                        | 19.9     | 19.8     | 3.0 | 21.5             |
|             |        | 100              | 0            | 19.5                        | 20.0     | 19.8     | 3.0 | 21.5             |
|             | 16QAM  | 1                | 0            | 18.4                        | 18.4     | 18.2     | 5.0 | 19.5             |
|             |        | 1                | 49           | 18.3                        | 18.3     | 18.4     | 5.0 | 19.5             |
|             |        | 1                | 99           | 18.3                        | 18.4     | 18.2     | 5.0 | 19.5             |
|             | 64QAM  | 50               | 0            | 17.7                        | 17.7     | 18.1     | 5.0 | 19.5             |
|             |        | 50               | 24           | 17.7                        | 17.7     | 18.1     | 5.0 | 19.5             |
|             |        | 50               | 50           | 17.7                        | 17.7     | 18.1     | 5.0 | 19.5             |
|             | 256QAM | 100              | 0            | 17.7                        | 17.8     | 18.1     | 5.0 | 19.5             |
|             |        | 1                | 0            | 22.7                        | 23.1     | 22.9     | 0.0 | 24.5             |
|             | 16QAM  | 1                | 37           | 22.7                        | 23.0     | 23.2     | 0.0 | 24.5             |
|             |        | 1                | 74           | 22.6                        | 23.1     | 22.9     | 0.0 | 24.5             |
|             |        | 36               | 0            | 21.7                        | 22.1     | 21.9     | 1.0 | 23.5             |
|             |        | 36               | 20           | 21.7                        | 22.1     | 21.9     | 1.0 | 23.5             |
|             | 64QAM  | 36               | 39           | 21.7                        | 22.1     | 21.9     | 1.0 | 23.5             |
|             |        | 75               | 0            | 21.7                        | 22.1     | 21.9     | 1.0 | 23.5             |
|             | 256QAM | 1                | 0            | 21.8                        | 22.3     | 22.3     | 1.0 | 23.5             |
|             |        | 1                | 37           | 21.9                        | 22.3     | 22.3     | 1.0 | 23.5             |
|             |        | 1                | 74           | 21.8                        | 22.3     | 22.2     | 1.0 | 23.5             |
|             |        | 36               | 0            | 20.7                        | 21.1     | 21.0     | 2.0 | 22.5             |
|             |        | 36               | 20           | 20.6                        | 21.1     | 20.9     | 2.0 | 22.5             |
|             | 16QAM  | 36               | 39           | 20.6                        | 21.1     | 20.9     | 2.0 | 22.5             |
|             |        | 75               | 0            | 20.6                        | 21.1     | 20.9     | 2.0 | 22.5             |
|             | 64QAM  | 1                | 0            | 20.8                        | 21.2     | 21.0     | 2.0 | 22.5             |
|             |        | 1                | 37           | 21.0                        | 21.3     | 21.1     | 2.0 | 22.5             |
|             |        | 1                | 74           | 20.9                        | 21.2     | 20.9     | 2.0 | 22.5             |
|             |        | 36               | 0            | 19.5                        | 20.0     | 19.8     | 3.0 | 21.5             |
|             | 256QAM | 36               | 20           | 19.5                        | 20.0     | 19.8     | 3.0 | 21.5             |
|             |        | 36               | 39           | 19.4                        | 20.0     | 19.8     | 3.0 | 21.5             |
|             |        | 75               | 0            | 19.5                        | 20.0     | 19.7     | 3.0 | 21.5             |
|             | 16QAM  | 1                | 0            | 17.8                        | 17.1     | 18.6     | 5.0 | 19.5             |
|             |        | 1                | 37           | 17.8                        | 17.4     | 18.7     | 5.0 | 19.5             |
|             |        | 1                | 74           | 17.7                        | 17.0     | 18.6     | 5.0 | 19.5             |
|             |        | 36               | 0            | 18.0                        | 17.8     | 18.0     | 5.0 | 19.5             |
|             | 256QAM | 36               | 20           | 18.0                        | 17.7     | 18.0     | 5.0 | 19.5             |
|             |        | 36               | 39           | 18.0                        | 17.7     | 18.0     | 5.0 | 19.5             |
|             |        | 75               | 0            | 17.9                        | 17.8     | 18.0     | 5.0 | 19.5             |

**LTE Band 66 Measured Results (Continued)**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |          |            | MPR | Tune-up<br>Limit |
|-------------|--------|------------------|--------------|--------------------|----------|------------|-----|------------------|
|             |        |                  |              | 132022             | 132322   | 132622     |     |                  |
|             |        |                  |              | 1715 MHz           | 1745 MHz | 1775 MHz   |     |                  |
| 10 MHz      | QPSK   | 1                | 0            | 22.7               | 23.1     | 22.9       | 0.0 | 24.5             |
|             |        | 1                | 25           | 22.6               | 23.0     | 22.8       | 0.0 | 24.5             |
|             |        | 1                | 49           | 22.7               | 23.1     | 22.8       | 0.0 | 24.5             |
|             |        | 25               | 0            | 21.7               | 22.1     | 21.8       | 1.0 | 23.5             |
|             |        | 25               | 12           | 21.6               | 22.1     | 21.8       | 1.0 | 23.5             |
|             |        | 25               | 25           | 21.7               | 22.1     | 21.8       | 1.0 | 23.5             |
|             |        | 50               | 0            | 21.6               | 22.1     | 21.8       | 1.0 | 23.5             |
|             | 16QAM  | 1                | 0            | 21.7               | 22.5     | 22.1       | 1.0 | 23.5             |
|             |        | 1                | 25           | 21.6               | 22.3     | 22.1       | 1.0 | 23.5             |
|             |        | 1                | 49           | 21.8               | 22.4     | 22.2       | 1.0 | 23.5             |
|             |        | 25               | 0            | 20.7               | 21.1     | 20.8       | 2.0 | 22.5             |
|             |        | 25               | 12           | 20.7               | 21.1     | 20.8       | 2.0 | 22.5             |
|             |        | 25               | 25           | 20.7               | 21.1     | 20.9       | 2.0 | 22.5             |
|             |        | 50               | 0            | 20.6               | 21.1     | 20.8       | 2.0 | 22.5             |
|             | 64QAM  | 1                | 0            | 20.7               | 21.1     | 20.8       | 2.0 | 22.5             |
|             |        | 1                | 25           | 20.4               | 21.0     | 20.7       | 2.0 | 22.5             |
|             |        | 1                | 49           | 20.5               | 21.2     | 20.9       | 2.0 | 22.5             |
|             |        | 25               | 0            | 19.6               | 19.9     | 19.7       | 3.0 | 21.5             |
|             |        | 25               | 12           | 19.5               | 19.9     | 19.7       | 3.0 | 21.5             |
|             |        | 25               | 25           | 19.5               | 19.9     | 19.7       | 3.0 | 21.5             |
|             |        | 50               | 0            | 19.5               | 19.9     | 19.7       | 3.0 | 21.5             |
|             | 256QAM | 1                | 0            | 17.7               | 17.9     | 17.8       | 5.0 | 19.5             |
|             |        | 1                | 25           | 17.9               | 17.9     | 17.8       | 5.0 | 19.5             |
|             |        | 1                | 49           | 17.9               | 17.9     | 17.9       | 5.0 | 19.5             |
|             |        | 25               | 0            | 17.8               | 17.8     | 18.1       | 5.0 | 19.5             |
|             |        | 25               | 12           | 17.8               | 17.8     | 18.1       | 5.0 | 19.5             |
|             |        | 25               | 25           | 17.8               | 17.8     | 18.1       | 5.0 | 19.5             |
|             |        | 50               | 0            | 17.6               | 17.7     | 18.1       | 5.0 | 19.5             |
| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |          |            | MPR | Tune-up<br>Limit |
|             |        |                  |              | 131997             | 132322   | 132647     |     |                  |
|             |        |                  |              | 1712.5 MHz         | 1745 MHz | 1777.5 MHz |     |                  |
| 5 MHz       | QPSK   | 1                | 0            | 22.7               | 23.1     | 22.8       | 0.0 | 24.5             |
|             |        | 1                | 12           | 22.7               | 23.1     | 22.9       | 0.0 | 24.5             |
|             |        | 1                | 24           | 22.7               | 23.1     | 22.8       | 0.0 | 24.5             |
|             |        | 12               | 0            | 21.7               | 22.1     | 21.8       | 1.0 | 23.5             |
|             |        | 12               | 7            | 21.7               | 22.1     | 21.8       | 1.0 | 23.5             |
|             |        | 12               | 13           | 21.7               | 22.1     | 21.8       | 1.0 | 23.5             |
|             |        | 25               | 0            | 21.7               | 22.0     | 21.8       | 1.0 | 23.5             |
|             | 16QAM  | 1                | 0            | 22.0               | 22.2     | 22.1       | 1.0 | 23.5             |
|             |        | 1                | 12           | 22.1               | 22.4     | 22.2       | 1.0 | 23.5             |
|             |        | 1                | 24           | 21.9               | 22.3     | 22.1       | 1.0 | 23.5             |
|             |        | 12               | 0            | 20.7               | 21.1     | 20.9       | 2.0 | 22.5             |
|             |        | 12               | 7            | 20.7               | 21.1     | 20.9       | 2.0 | 22.5             |
|             |        | 12               | 13           | 20.6               | 21.1     | 20.9       | 2.0 | 22.5             |
|             |        | 25               | 0            | 20.7               | 21.0     | 20.9       | 2.0 | 22.5             |
|             | 64QAM  | 1                | 0            | 20.8               | 21.2     | 20.6       | 2.0 | 22.5             |
|             |        | 1                | 12           | 20.7               | 21.0     | 20.7       | 2.0 | 22.5             |
|             |        | 1                | 24           | 20.7               | 21.2     | 20.7       | 2.0 | 22.5             |
|             |        | 12               | 0            | 19.5               | 19.9     | 19.6       | 3.0 | 21.5             |
|             |        | 12               | 7            | 19.5               | 19.9     | 19.6       | 3.0 | 21.5             |
|             |        | 12               | 13           | 19.5               | 19.9     | 19.7       | 3.0 | 21.5             |
|             |        | 25               | 0            | 19.5               | 19.9     | 19.7       | 3.0 | 21.5             |
|             | 256QAM | 1                | 0            | 17.2               | 17.1     | 18.0       | 5.0 | 19.5             |
|             |        | 1                | 12           | 17.1               | 17.5     | 18.0       | 5.0 | 19.5             |
|             |        | 1                | 24           | 17.1               | 17.1     | 18.0       | 5.0 | 19.5             |
|             |        | 12               | 0            | 18.0               | 17.6     | 18.1       | 5.0 | 19.5             |
|             |        | 12               | 7            | 18.0               | 17.5     | 18.1       | 5.0 | 19.5             |
|             |        | 12               | 13           | 18.0               | 17.6     | 18.1       | 5.0 | 19.5             |
|             |        | 25               | 0            | 18.0               | 17.7     | 18.0       | 5.0 | 19.5             |

**LTE Band 66 Measured Results (Continued)**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |          |            | MPR | Tune-up<br>Limit |
|-------------|--------|------------------|--------------|--------------------|----------|------------|-----|------------------|
|             |        |                  |              | 131987             | 132322   | 132657     |     |                  |
|             |        |                  |              | 1711.5 MHz         | 1745 MHz | 1778.5 MHz |     |                  |
| 3 MHz       | QPSK   | 1                | 0            | 22.7               | 23.1     | 22.8       | 0.0 | 24.5             |
|             |        | 1                | 8            | 22.8               | 23.0     | 23.0       | 0.0 | 24.5             |
|             |        | 1                | 14           | 22.7               | 23.0     | 22.8       | 0.0 | 24.5             |
|             |        | 8                | 0            | 21.7               | 22.0     | 21.8       | 1.0 | 23.5             |
|             |        | 8                | 4            | 21.7               | 22.0     | 21.8       | 1.0 | 23.5             |
|             |        | 8                | 7            | 21.7               | 22.0     | 21.8       | 1.0 | 23.5             |
|             |        | 15               | 0            | 21.7               | 22.0     | 21.8       | 1.0 | 23.5             |
|             | 16QAM  | 1                | 0            | 21.6               | 22.3     | 22.2       | 1.0 | 23.5             |
|             |        | 1                | 8            | 21.8               | 22.3     | 22.3       | 1.0 | 23.5             |
|             |        | 1                | 14           | 21.6               | 22.4     | 22.2       | 1.0 | 23.5             |
|             |        | 8                | 0            | 20.7               | 21.1     | 20.8       | 2.0 | 22.5             |
|             |        | 8                | 4            | 20.7               | 21.1     | 20.9       | 2.0 | 22.5             |
|             |        | 8                | 7            | 20.7               | 21.0     | 20.9       | 2.0 | 22.5             |
|             |        | 15               | 0            | 20.6               | 21.0     | 20.8       | 2.0 | 22.5             |
|             | 64QAM  | 1                | 0            | 20.5               | 21.0     | 20.6       | 2.0 | 22.5             |
|             |        | 1                | 8            | 20.3               | 21.0     | 20.8       | 2.0 | 22.5             |
|             |        | 1                | 14           | 20.4               | 21.0     | 20.9       | 2.0 | 22.5             |
|             |        | 8                | 0            | 19.6               | 19.9     | 19.7       | 3.0 | 21.5             |
|             |        | 8                | 4            | 19.6               | 19.9     | 19.7       | 3.0 | 21.5             |
|             |        | 8                | 7            | 19.5               | 19.9     | 19.7       | 3.0 | 21.5             |
|             |        | 15               | 0            | 19.5               | 19.9     | 19.7       | 3.0 | 21.5             |
|             | 256QAM | 1                | 0            | 17.4               | 18.2     | 19.1       | 5.0 | 19.5             |
|             |        | 1                | 8            | 18.2               | 18.2     | 19.1       | 5.0 | 19.5             |
|             |        | 1                | 14           | 18.2               | 18.2     | 19.1       | 5.0 | 19.5             |
|             |        | 8                | 0            | 17.5               | 17.5     | 17.7       | 5.0 | 19.5             |
|             |        | 8                | 4            | 17.4               | 17.5     | 17.7       | 5.0 | 19.5             |
|             |        | 8                | 7            | 17.5               | 17.5     | 17.7       | 5.0 | 19.5             |
|             |        | 15               | 0            | 17.9               | 17.9     | 17.9       | 5.0 | 19.5             |
| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |          |            | MPR | Tune-up<br>Limit |
|             |        |                  |              | 131979             | 132322   | 132665     |     |                  |
|             |        |                  |              | 1710.7 MHz         | 1745 MHz | 1779.3 MHz |     |                  |
| 1.4 MHz     | QPSK   | 1                | 0            | 22.6               | 23.0     | 22.8       | 0.0 | 24.5             |
|             |        | 1                | 3            | 22.6               | 22.9     | 22.7       | 0.0 | 24.5             |
|             |        | 1                | 5            | 22.6               | 23.0     | 22.7       | 0.0 | 24.5             |
|             |        | 3                | 0            | 22.5               | 22.9     | 22.7       | 0.0 | 24.5             |
|             |        | 3                | 1            | 22.4               | 22.9     | 22.7       | 0.0 | 24.5             |
|             |        | 3                | 3            | 22.5               | 22.9     | 22.7       | 0.0 | 24.5             |
|             |        | 6                | 0            | 21.7               | 22.0     | 21.7       | 1.0 | 23.5             |
|             | 16QAM  | 1                | 0            | 21.6               | 22.3     | 21.8       | 1.0 | 23.5             |
|             |        | 1                | 3            | 21.6               | 22.1     | 21.5       | 1.0 | 23.5             |
|             |        | 1                | 5            | 21.7               | 22.2     | 21.8       | 1.0 | 23.5             |
|             |        | 3                | 0            | 21.6               | 22.0     | 21.7       | 1.0 | 23.5             |
|             |        | 3                | 1            | 21.5               | 22.1     | 21.7       | 1.0 | 23.5             |
|             |        | 3                | 3            | 21.5               | 22.1     | 21.8       | 1.0 | 23.5             |
|             |        | 6                | 0            | 20.7               | 21.0     | 20.8       | 2.0 | 22.5             |
|             | 64QAM  | 1                | 0            | 20.6               | 21.2     | 20.7       | 2.0 | 22.5             |
|             |        | 1                | 3            | 20.5               | 21.1     | 20.7       | 2.0 | 22.5             |
|             |        | 1                | 5            | 20.6               | 21.1     | 20.4       | 2.0 | 22.5             |
|             |        | 3                | 0            | 20.5               | 20.9     | 20.7       | 2.0 | 22.5             |
|             |        | 3                | 1            | 20.5               | 20.9     | 20.8       | 2.0 | 22.5             |
|             |        | 3                | 3            | 20.6               | 21.0     | 20.8       | 2.0 | 22.5             |
|             |        | 6                | 0            | 19.5               | 19.9     | 19.8       | 3.0 | 21.5             |
|             | 256QAM | 1                | 0            | 17.7               | 18.9     | 17.9       | 5.0 | 19.5             |
|             |        | 1                | 3            | 18.9               | 18.9     | 17.9       | 5.0 | 19.5             |
|             |        | 1                | 5            | 18.9               | 19.0     | 17.9       | 5.0 | 19.5             |
|             |        | 3                | 0            | 18.0               | 18.0     | 17.8       | 5.0 | 19.5             |
|             |        | 3                | 1            | 18.0               | 18.0     | 17.8       | 5.0 | 19.5             |
|             |        | 3                | 3            | 18.0               | 18.0     | 17.7       | 5.0 | 19.5             |
|             |        | 6                | 0            | 18.2               | 18.2     | 17.8       | 5.0 | 19.5             |

## 2. Reduced power Results

### LTE Band 25 Measured Results

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Reduced Average Power (dBm)<br>Hotspot back-off |            |            |     |                  | Reduced Average Power (dBm)<br>Proximity sensor back-off |            |            |     |                  |
|-------------|--------|------------------|--------------|-------------------------------------------------|------------|------------|-----|------------------|----------------------------------------------------------|------------|------------|-----|------------------|
|             |        |                  |              | Measured Pwr (dBm)                              |            |            | MPR | Tune-up<br>Limit | Measured Pwr (dBm)                                       |            |            | MPR | Tune-up<br>Limit |
|             |        |                  |              | 26140                                           | 26365      | 26590      |     |                  | 26140                                                    | 26365      | 26590      |     |                  |
|             |        |                  |              | 1860 MHz                                        | 1882.5 MHz | 1905 MHz   |     |                  | 1860 MHz                                                 | 1882.5 MHz | 1905 MHz   |     |                  |
| 20 MHz      | QPSK   | 1                | 0            | 18.8                                            | 19.0       | 19.2       | 0.0 | 20.5             | 18.8                                                     | 19.0       | 19.2       | 0.0 | 20.5             |
|             |        | 1                | 49           | 18.8                                            | 18.9       | 19.0       | 0.0 | 20.5             | 18.6                                                     | 18.9       | 19.1       | 0.0 | 20.5             |
|             |        | 1                | 99           | 18.8                                            | 19.0       | 19.1       | 0.0 | 20.5             | 18.8                                                     | 18.9       | 19.1       | 0.0 | 20.5             |
|             |        | 50               | 0            | 18.8                                            | 19.0       | 19.2       | 0.0 | 20.5             | 18.8                                                     | 19.0       | 19.2       | 0.0 | 20.5             |
|             |        | 50               | 24           | 18.8                                            | 19.0       | 19.1       | 0.0 | 20.5             | 18.8                                                     | 18.9       | 19.1       | 0.0 | 20.5             |
|             |        | 50               | 50           | 18.8                                            | 18.9       | 19.2       | 0.0 | 20.5             | 18.8                                                     | 18.9       | 19.1       | 0.0 | 20.5             |
|             |        | 100              | 0            | 18.8                                            | 19.0       | 19.2       | 0.0 | 20.5             | 18.8                                                     | 18.9       | 19.1       | 0.0 | 20.5             |
|             | 16QAM  | 1                | 0            | 19.0                                            | 19.4       | 19.6       | 0.0 | 20.5             | 19.1                                                     | 19.4       | 19.6       | 0.0 | 20.5             |
|             |        | 1                | 49           | 18.8                                            | 19.2       | 19.4       | 0.0 | 20.5             | 19.0                                                     | 19.1       | 19.5       | 0.0 | 20.5             |
|             |        | 1                | 99           | 19.0                                            | 19.3       | 19.5       | 0.0 | 20.5             | 19.1                                                     | 19.3       | 19.6       | 0.0 | 20.5             |
|             |        | 50               | 0            | 18.8                                            | 19.0       | 19.2       | 0.0 | 20.5             | 18.7                                                     | 19.0       | 19.1       | 0.0 | 20.5             |
|             |        | 50               | 24           | 18.8                                            | 18.9       | 19.1       | 0.0 | 20.5             | 18.7                                                     | 18.9       | 19.1       | 0.0 | 20.5             |
|             |        | 50               | 50           | 18.8                                            | 18.9       | 19.1       | 0.0 | 20.5             | 18.7                                                     | 18.9       | 19.1       | 0.0 | 20.5             |
|             |        | 100              | 0            | 18.7                                            | 19.0       | 19.2       | 0.0 | 20.5             | 18.7                                                     | 18.9       | 19.1       | 0.0 | 20.5             |
|             | 64QAM  | 1                | 0            | 19.6                                            | 19.2       | 19.0       | 0.0 | 20.5             | 19.5                                                     | 19.2       | 18.9       | 0.0 | 20.5             |
|             |        | 1                | 49           | 19.3                                            | 19.1       | 19.0       | 0.0 | 20.5             | 19.2                                                     | 19.1       | 18.9       | 0.0 | 20.5             |
|             |        | 1                | 99           | 19.5                                            | 19.1       | 19.0       | 0.0 | 20.5             | 19.3                                                     | 19.2       | 18.9       | 0.0 | 20.5             |
|             |        | 50               | 0            | 19.2                                            | 19.2       | 19.0       | 0.0 | 20.5             | 19.2                                                     | 19.2       | 18.9       | 0.0 | 20.5             |
|             |        | 50               | 24           | 19.2                                            | 19.2       | 19.0       | 0.0 | 20.5             | 19.1                                                     | 19.2       | 19.0       | 0.0 | 20.5             |
|             |        | 50               | 50           | 19.2                                            | 19.2       | 19.0       | 0.0 | 20.5             | 19.1                                                     | 19.2       | 19.0       | 0.0 | 20.5             |
|             |        | 100              | 0            | 19.2                                            | 19.2       | 19.0       | 0.0 | 20.5             | 19.1                                                     | 19.2       | 18.9       | 0.0 | 20.5             |
|             | 256QAM | 1                | 0            | 19.3                                            | 19.3       | 19.0       | 0.0 | 20.5             | 19.1                                                     | 19.2       | 19.0       | 0.0 | 20.5             |
|             |        | 1                | 49           | 19.2                                            | 19.2       | 19.0       | 0.0 | 20.5             | 19.0                                                     | 19.1       | 19.0       | 0.0 | 20.5             |
|             |        | 1                | 99           | 19.3                                            | 19.3       | 19.0       | 0.0 | 20.5             | 19.1                                                     | 19.1       | 19.0       | 0.0 | 20.5             |
|             |        | 50               | 0            | 18.7                                            | 18.5       | 18.3       | 1.0 | 19.5             | 18.6                                                     | 18.4       | 18.2       | 1.0 | 19.5             |
|             |        | 50               | 24           | 18.7                                            | 18.5       | 18.3       | 1.0 | 19.5             | 18.6                                                     | 18.4       | 18.2       | 1.0 | 19.5             |
|             |        | 50               | 50           | 18.7                                            | 18.4       | 18.3       | 1.0 | 19.5             | 18.6                                                     | 18.4       | 18.2       | 1.0 | 19.5             |
|             |        | 100              | 0            | 18.7                                            | 18.5       | 18.3       | 1.0 | 19.5             | 18.6                                                     | 18.4       | 18.2       | 1.0 | 19.5             |
| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm)                              |            |            | MPR | Tune-up<br>Limit | Measured Pwr (dBm)                                       |            |            | MPR | Tune-up<br>Limit |
|             |        |                  |              | 26115                                           | 26365      | 26615      |     |                  | 26115                                                    | 26365      | 26615      |     |                  |
|             |        |                  |              | 1857.5 MHz                                      | 1882.5 MHz | 1907.5 MHz |     |                  | 1857.5 MHz                                               | 1882.5 MHz | 1907.5 MHz |     |                  |
|             |        |                  |              |                                                 |            |            |     |                  |                                                          |            |            |     |                  |
| 15 MHz      | QPSK   | 1                | 0            | 19.2                                            | 19.0       | 18.9       | 0.0 | 20.5             | 19.3                                                     | 18.9       | 18.9       | 0.0 | 20.5             |
|             |        | 1                | 37           | 19.3                                            | 18.8       | 19.1       | 0.0 | 20.5             | 19.3                                                     | 18.7       | 19.1       | 0.0 | 20.5             |
|             |        | 1                | 74           | 19.1                                            | 18.9       | 18.9       | 0.0 | 20.5             | 19.2                                                     | 18.9       | 18.9       | 0.0 | 20.5             |
|             |        | 36               | 0            | 19.3                                            | 18.9       | 18.8       | 0.0 | 20.5             | 19.3                                                     | 19.0       | 18.8       | 0.0 | 20.5             |
|             |        | 36               | 20           | 19.2                                            | 18.9       | 18.8       | 0.0 | 20.5             | 19.2                                                     | 18.9       | 18.8       | 0.0 | 20.5             |
|             |        | 36               | 39           | 19.2                                            | 19.0       | 18.8       | 0.0 | 20.5             | 19.2                                                     | 19.0       | 18.8       | 0.0 | 20.5             |
|             |        | 75               | 0            | 19.2                                            | 19.0       | 18.9       | 0.0 | 20.5             | 19.2                                                     | 19.0       | 18.8       | 0.0 | 20.5             |
|             | 16QAM  | 1                | 0            | 19.6                                            | 19.3       | 19.2       | 0.0 | 20.5             | 19.4                                                     | 19.3       | 19.3       | 0.0 | 20.5             |
|             |        | 1                | 37           | 19.6                                            | 19.2       | 19.3       | 0.0 | 20.5             | 19.5                                                     | 19.3       | 19.5       | 0.0 | 20.5             |
|             |        | 1                | 74           | 19.5                                            | 19.2       | 19.2       | 0.0 | 20.5             | 19.3                                                     | 19.2       | 19.3       | 0.0 | 20.5             |
|             |        | 36               | 0            | 19.2                                            | 18.9       | 18.9       | 0.0 | 20.5             | 19.2                                                     | 19.0       | 18.9       | 0.0 | 20.5             |
|             |        | 36               | 20           | 19.2                                            | 18.9       | 18.9       | 0.0 | 20.5             | 19.2                                                     | 18.9       | 18.9       | 0.0 | 20.5             |
|             |        | 36               | 39           | 19.2                                            | 18.9       | 18.8       | 0.0 | 20.5             | 19.2                                                     | 18.9       | 18.8       | 0.0 | 20.5             |
|             |        | 75               | 0            | 19.2                                            | 18.9       | 18.8       | 0.0 | 20.5             | 19.2                                                     | 18.9       | 18.8       | 0.0 | 20.5             |
|             | 64QAM  | 1                | 0            | 19.5                                            | 19.1       | 18.9       | 0.0 | 20.5             | 19.5                                                     | 19.0       | 18.9       | 0.0 | 20.5             |
|             |        | 1                | 37           | 19.4                                            | 19.1       | 19.0       | 0.0 | 20.5             | 19.5                                                     | 19.1       | 18.9       | 0.0 | 20.5             |
|             |        | 1                | 74           | 19.4                                            | 19.1       | 19.0       | 0.0 | 20.5             | 19.5                                                     | 19.0       | 18.9       | 0.0 | 20.5             |
|             |        | 36               | 0            | 19.3                                            | 19.1       | 19.0       | 0.0 | 20.5             | 19.2                                                     | 19.1       | 18.9       | 0.0 | 20.5             |
|             |        | 36               | 20           | 19.2                                            | 19.1       | 18.9       | 0.0 | 20.5             | 19.2                                                     | 19.1       | 18.9       | 0.0 | 20.5             |
|             |        | 36               | 39           | 19.2                                            | 19.1       | 19.0       | 0.0 | 20.5             | 19.2                                                     | 19.1       | 18.9       | 0.0 | 20.5             |
|             |        | 75               | 0            | 19.3                                            | 19.1       | 18.9       | 0.0 | 20.5             | 19.2                                                     | 19.1       | 18.9       | 0.0 | 20.5             |
|             | 256QAM | 1                | 0            | 19.4                                            | 19.2       | 18.9       | 0.0 | 20.5             | 19.3                                                     | 19.2       | 18.7       | 0.0 | 20.5             |
|             |        | 1                | 37           | 19.3                                            | 19.1       | 18.9       | 0.0 | 20.5             | 19.3                                                     | 19.3       | 18.8       | 0.0 | 20.5             |
|             |        | 1                | 74           | 19.3                                            | 19.2       | 18.8       | 0.0 | 20.5             | 19.3                                                     | 19.1       | 18.7       | 0.0 | 20.5             |
|             |        | 36               | 0            | 18.8                                            | 18.5       | 18.4       | 1.0 | 19.5             | 18.7                                                     | 18.5       | 18.3       | 1.0 | 19.5             |
|             |        | 36               | 20           | 18.7                                            | 18.5       | 18.4       | 1.0 | 19.5             | 18.7                                                     | 18.5       | 18.3       | 1.0 | 19.5             |
|             |        | 36               | 39           | 18.7                                            | 18.5       | 18.4       | 1.0 | 19.5             | 18.7                                                     | 18.4       | 18.3       | 1.0 | 19.5             |
|             |        | 75               | 0            | 18.8                                            | 18.5       | 18.4       | 1.0 | 19.5             | 18.7                                                     | 18.5       | 18.3       | 1.0 | 19.5             |

**LTE Band 25 Measured Results (Continued)**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |            |          | MPR | Tune-up<br>Limit | Measured Pwr (dBm) |            |          | MPR | Tune-up<br>Limit |
|-------------|--------|------------------|--------------|--------------------|------------|----------|-----|------------------|--------------------|------------|----------|-----|------------------|
|             |        |                  |              | 26090              | 26365      | 26640    |     |                  | 26090              | 26365      | 26640    |     |                  |
|             |        |                  |              | 1855 MHz           | 1882.5 MHz | 1910 MHz |     |                  | 1855 MHz           | 1882.5 MHz | 1910 MHz |     |                  |
| 10 MHz      | QPSK   | 1                | 0            | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             |
|             |        | 1                | 25           | 19.2               | 18.8       | 18.8     | 0.0 | 20.5             | 19.2               | 18.8       | 18.8     | 0.0 | 20.5             |
|             |        | 1                | 49           | 19.2               | 18.9       | 18.8     | 0.0 | 20.5             | 19.2               | 18.9       | 18.8     | 0.0 | 20.5             |
|             |        | 25               | 0            | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             |
|             |        | 25               | 12           | 19.2               | 18.9       | 18.8     | 0.0 | 20.5             | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             |
|             |        | 25               | 25           | 19.2               | 18.9       | 18.8     | 0.0 | 20.5             | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             |
|             | 16QAM  | 50               | 0            | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             |
|             |        | 1                | 0            | 19.3               | 19.2       | 19.2     | 0.0 | 20.5             | 19.4               | 19.2       | 19.1     | 0.0 | 20.5             |
|             |        | 1                | 25           | 19.2               | 19.0       | 19.1     | 0.0 | 20.5             | 19.2               | 19.0       | 19.0     | 0.0 | 20.5             |
|             |        | 1                | 49           | 19.3               | 19.2       | 19.1     | 0.0 | 20.5             | 19.3               | 19.2       | 19.1     | 0.0 | 20.5             |
|             |        | 25               | 0            | 19.3               | 18.9       | 18.9     | 0.0 | 20.5             | 19.3               | 19.0       | 18.9     | 0.0 | 20.5             |
|             |        | 25               | 12           | 19.3               | 18.9       | 18.9     | 0.0 | 20.5             | 19.3               | 19.0       | 18.8     | 0.0 | 20.5             |
|             | 64QAM  | 25               | 25           | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             | 19.3               | 19.0       | 18.8     | 0.0 | 20.5             |
|             |        | 50               | 0            | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             |
|             |        | 1                | 0            | 19.4               | 19.2       | 18.8     | 0.0 | 20.5             | 19.4               | 19.1       | 18.9     | 0.0 | 20.5             |
|             |        | 1                | 25           | 19.3               | 19.2       | 18.9     | 0.0 | 20.5             | 19.2               | 19.1       | 18.9     | 0.0 | 20.5             |
|             |        | 1                | 49           | 19.3               | 19.2       | 18.8     | 0.0 | 20.5             | 19.3               | 19.1       | 18.9     | 0.0 | 20.5             |
|             |        | 25               | 0            | 19.3               | 19.2       | 18.8     | 0.0 | 20.5             | 19.3               | 19.1       | 18.9     | 0.0 | 20.5             |
|             | 256QAM | 25               | 12           | 19.3               | 19.2       | 18.8     | 0.0 | 20.5             | 19.3               | 19.1       | 18.9     | 0.0 | 20.5             |
|             |        | 25               | 25           | 19.3               | 19.2       | 18.8     | 0.0 | 20.5             | 19.3               | 19.1       | 18.9     | 0.0 | 20.5             |
|             |        | 50               | 0            | 19.3               | 19.2       | 18.8     | 0.0 | 20.5             | 19.3               | 19.1       | 18.9     | 0.0 | 20.5             |
|             |        | 1                | 0            | 19.4               | 19.1       | 18.9     | 0.0 | 20.5             | 19.4               | 19.2       | 18.9     | 0.0 | 20.5             |
|             |        | 1                | 25           | 19.4               | 19.1       | 18.8     | 0.0 | 20.5             | 19.2               | 19.1       | 18.8     | 0.0 | 20.5             |
|             |        | 1                | 49           | 19.4               | 19.1       | 18.8     | 0.0 | 20.5             | 19.3               | 19.1       | 18.9     | 0.0 | 20.5             |
| 5 MHz       | QPSK   | 25               | 0            | 18.9               | 18.5       | 18.4     | 1.0 | 19.5             | 18.8               | 18.5       | 18.4     | 1.0 | 19.5             |
|             |        | 25               | 12           | 18.9               | 18.5       | 18.4     | 1.0 | 19.5             | 18.8               | 18.5       | 18.3     | 1.0 | 19.5             |
|             |        | 25               | 25           | 18.9               | 18.5       | 18.3     | 1.0 | 19.5             | 18.9               | 18.4       | 18.3     | 1.0 | 19.5             |
|             |        | 50               | 0            | 18.8               | 18.5       | 18.3     | 1.0 | 19.5             | 18.8               | 18.5       | 18.3     | 1.0 | 19.5             |
|             | 16QAM  | 1                | 0            | 19.2               | 18.9       | 18.7     | 0.0 | 20.5             | 19.4               | 18.9       | 18.7     | 0.0 | 20.5             |
|             |        | 1                | 12           | 19.2               | 19.0       | 18.8     | 0.0 | 20.5             | 19.3               | 19.0       | 18.8     | 0.0 | 20.5             |
|             |        | 1                | 24           | 19.2               | 18.9       | 18.7     | 0.0 | 20.5             | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             |
|             |        | 12               | 0            | 19.3               | 18.9       | 18.7     | 0.0 | 20.5             | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             |
|             |        | 12               | 7            | 19.3               | 18.9       | 18.7     | 0.0 | 20.5             | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             |
|             |        | 12               | 13           | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             |
|             | 64QAM  | 25               | 0            | 19.3               | 18.9       | 18.7     | 0.0 | 20.5             | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             |
|             |        | 1                | 0            | 19.7               | 19.3       | 19.2     | 0.0 | 20.5             | 19.7               | 19.3       | 19.2     | 0.0 | 20.5             |
|             |        | 1                | 12           | 19.4               | 19.2       | 19.1     | 0.0 | 20.5             | 19.4               | 19.3       | 19.3     | 0.0 | 20.5             |
|             |        | 1                | 24           | 19.7               | 19.2       | 19.2     | 0.0 | 20.5             | 19.6               | 19.3       | 19.2     | 0.0 | 20.5             |
|             |        | 12               | 0            | 19.3               | 19.0       | 18.8     | 0.0 | 20.5             | 19.4               | 19.0       | 18.8     | 0.0 | 20.5             |
|             |        | 12               | 7            | 19.3               | 19.0       | 18.8     | 0.0 | 20.5             | 19.4               | 19.0       | 18.8     | 0.0 | 20.5             |
|             | 256QAM | 12               | 13           | 19.3               | 19.0       | 18.8     | 0.0 | 20.5             | 19.4               | 19.0       | 18.8     | 0.0 | 20.5             |
|             |        | 25               | 0            | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             | 19.3               | 18.9       | 18.8     | 0.0 | 20.5             |
|             |        | 1                | 0            | 19.4               | 19.1       | 19.1     | 0.0 | 20.5             | 19.4               | 19.1       | 19.0     | 0.0 | 20.5             |
|             |        | 1                | 12           | 19.4               | 19.1       | 19.1     | 0.0 | 20.5             | 19.5               | 19.1       | 19.0     | 0.0 | 20.5             |
|             |        | 1                | 24           | 19.4               | 19.1       | 19.1     | 0.0 | 20.5             | 19.4               | 19.1       | 19.0     | 0.0 | 20.5             |
|             |        | 12               | 0            | 19.3               | 19.1       | 19.1     | 0.0 | 20.5             | 19.3               | 19.1       | 19.1     | 0.0 | 20.5             |
| 5 MHz       | 256QAM | 12               | 7            | 19.3               | 19.1       | 19.1     | 0.0 | 20.5             | 19.3               | 19.1       | 19.0     | 0.0 | 20.5             |
|             |        | 12               | 13           | 19.3               | 19.1       | 19.0     | 0.0 | 20.5             | 19.3               | 19.1       | 19.0     | 0.0 | 20.5             |
|             |        | 25               | 0            | 19.3               | 19.1       | 19.1     | 0.0 | 20.5             | 19.3               | 19.1       | 19.0     | 0.0 | 20.5             |
|             |        | 1                | 0            | 19.3               | 19.3       | 18.9     | 0.0 | 20.5             | 19.3               | 19.2       | 18.7     | 0.0 | 20.5             |
|             |        | 1                | 12           | 19.5               | 19.5       | 18.5     | 0.0 | 20.5             | 19.6               | 19.4       | 18.7     | 0.0 | 20.5             |
|             |        | 1                | 24           | 19.3               | 19.3       | 18.9     | 0.0 | 20.5             | 19.3               | 19.2       | 18.7     | 0.0 | 20.5             |
|             | 256QAM | 12               | 0            | 18.8               | 18.5       | 18.4     | 1.0 | 19.5             | 18.8               | 18.5       | 18.3     | 1.0 | 19.5             |
|             |        | 12               | 7            | 18.8               | 18.5       | 18.3     | 1.0 | 19.5             | 18.8               | 18.5       | 18.3     | 1.0 | 19.5             |
|             |        | 12               | 13           | 18.8               | 18.5       | 18.3     | 1.0 | 19.5             | 18.8               | 18.5       | 18.3     | 1.0 | 19.5             |
|             |        | 25               | 0            | 18.9               | 18.4       | 18.3     | 1.0 | 19.5             | 18.8               | 18.4       | 18.3     | 1.0 | 19.5             |

**LTE Band 25 Measured Results (Continued)**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |            |            | MPR | Tune-up<br>Limit | Measured Pwr (dBm) |            |            | MPR | Tune-up<br>Limit |
|-------------|--------|------------------|--------------|--------------------|------------|------------|-----|------------------|--------------------|------------|------------|-----|------------------|
|             |        |                  |              | 26055              | 26365      | 26675      |     |                  | 26055              | 26365      | 26675      |     |                  |
|             |        |                  |              | 1851.5 MHz         | 1882.5 MHz | 1913.5 MHz |     |                  | 1851.5 MHz         | 1882.5 MHz | 1913.5 MHz |     |                  |
| 3 MHz       | QPSK   | 1                | 0            | 19.3               | 18.9       | 18.7       | 0.0 | 20.5             | 19.3               | 18.9       | 18.7       | 0.0 | 20.5             |
|             |        | 1                | 8            | 19.4               | 18.7       | 18.9       | 0.0 | 20.5             | 19.4               | 18.8       | 18.9       | 0.0 | 20.5             |
|             |        | 1                | 14           | 19.3               | 18.9       | 18.7       | 0.0 | 20.5             | 19.3               | 18.9       | 18.8       | 0.0 | 20.5             |
|             |        | 8                | 0            | 19.3               | 18.9       | 18.7       | 0.0 | 20.5             | 19.3               | 18.9       | 18.7       | 0.0 | 20.5             |
|             |        | 8                | 4            | 19.3               | 18.9       | 18.7       | 0.0 | 20.5             | 19.3               | 18.9       | 18.7       | 0.0 | 20.5             |
|             |        | 8                | 7            | 19.3               | 18.9       | 18.7       | 0.0 | 20.5             | 19.3               | 18.9       | 18.7       | 0.0 | 20.5             |
|             | 16QAM  | 15               | 0            | 19.3               | 18.9       | 18.7       | 0.0 | 20.5             | 19.3               | 18.9       | 18.7       | 0.0 | 20.5             |
|             |        | 1                | 0            | 19.5               | 19.1       | 18.9       | 0.0 | 20.5             | 19.6               | 19.2       | 19.0       | 0.0 | 20.5             |
|             |        | 1                | 8            | 19.6               | 19.2       | 19.1       | 0.0 | 20.5             | 19.6               | 19.2       | 19.2       | 0.0 | 20.5             |
|             |        | 1                | 14           | 19.4               | 19.1       | 18.9       | 0.0 | 20.5             | 19.6               | 19.1       | 19.1       | 0.0 | 20.5             |
|             |        | 8                | 0            | 19.3               | 19.0       | 18.7       | 0.0 | 20.5             | 19.3               | 19.0       | 18.7       | 0.0 | 20.5             |
|             |        | 8                | 4            | 19.3               | 19.0       | 18.7       | 0.0 | 20.5             | 19.3               | 19.0       | 18.8       | 0.0 | 20.5             |
|             | 64QAM  | 8                | 7            | 19.3               | 19.0       | 18.7       | 0.0 | 20.5             | 19.3               | 18.9       | 18.8       | 0.0 | 20.5             |
|             |        | 15               | 0            | 19.3               | 18.9       | 18.7       | 0.0 | 20.5             | 19.3               | 18.9       | 18.7       | 0.0 | 20.5             |
|             |        | 1                | 0            | 19.6               | 18.9       | 18.6       | 0.0 | 20.5             | 19.5               | 18.9       | 18.7       | 0.0 | 20.5             |
|             |        | 1                | 8            | 19.4               | 19.0       | 18.5       | 0.0 | 20.5             | 19.3               | 19.1       | 18.7       | 0.0 | 20.5             |
|             |        | 1                | 14           | 19.6               | 18.9       | 18.5       | 0.0 | 20.5             | 19.4               | 18.9       | 18.6       | 0.0 | 20.5             |
|             |        | 8                | 0            | 19.2               | 19.0       | 18.6       | 0.0 | 20.5             | 19.3               | 19.1       | 18.6       | 0.0 | 20.5             |
|             | 256QAM | 8                | 4            | 19.2               | 18.9       | 18.6       | 0.0 | 20.5             | 19.3               | 18.9       | 18.6       | 0.0 | 20.5             |
|             |        | 8                | 7            | 19.2               | 19.0       | 18.8       | 0.0 | 20.5             | 19.3               | 18.9       | 18.7       | 0.0 | 20.5             |
|             |        | 15               | 0            | 19.3               | 18.9       | 18.8       | 0.0 | 20.5             | 19.3               | 18.9       | 18.8       | 0.0 | 20.5             |
|             |        | 1                | 0            | 19.2               | 19.1       | 18.7       | 0.0 | 20.5             | 19.4               | 19.0       | 18.7       | 0.0 | 20.5             |
|             |        | 1                | 8            | 19.5               | 19.0       | 18.8       | 0.0 | 20.5             | 19.6               | 19.1       | 18.8       | 0.0 | 20.5             |
|             |        | 1                | 14           | 19.3               | 19.1       | 18.6       | 0.0 | 20.5             | 19.4               | 19.1       | 18.8       | 0.0 | 20.5             |
| 1.4 MHz     | QPSK   | 8                | 0            | 18.8               | 18.4       | 18.3       | 1.0 | 19.5             | 18.9               | 18.5       | 18.3       | 1.0 | 19.5             |
|             |        | 8                | 4            | 18.7               | 18.4       | 18.2       | 1.0 | 19.5             | 18.8               | 18.5       | 18.2       | 1.0 | 19.5             |
|             |        | 8                | 7            | 18.8               | 18.5       | 18.2       | 1.0 | 19.5             | 18.9               | 18.5       | 18.2       | 1.0 | 19.5             |
|             |        | 15               | 0            | 18.8               | 18.4       | 18.2       | 1.0 | 19.5             | 18.9               | 18.4       | 18.3       | 1.0 | 19.5             |
|             | 16QAM  | 1                | 0            | 19.3               | 18.8       | 18.7       | 0.0 | 20.5             | 19.3               | 18.8       | 18.7       | 0.0 | 20.5             |
|             |        | 1                | 3            | 19.1               | 18.7       | 18.5       | 0.0 | 20.5             | 19.2               | 18.7       | 18.6       | 0.0 | 20.5             |
|             |        | 1                | 5            | 19.3               | 18.8       | 18.7       | 0.0 | 20.5             | 19.3               | 18.8       | 18.7       | 0.0 | 20.5             |
|             |        | 3                | 0            | 19.2               | 18.8       | 18.6       | 0.0 | 20.5             | 19.2               | 18.8       | 18.6       | 0.0 | 20.5             |
|             |        | 3                | 1            | 19.3               | 18.7       | 18.6       | 0.0 | 20.5             | 19.3               | 18.8       | 18.6       | 0.0 | 20.5             |
|             |        | 3                | 3            | 19.3               | 18.8       | 18.6       | 0.0 | 20.5             | 19.2               | 18.8       | 18.7       | 0.0 | 20.5             |
|             | 64QAM  | 6                | 0            | 19.3               | 18.8       | 18.6       | 0.0 | 20.5             | 19.3               | 18.8       | 18.7       | 0.0 | 20.5             |
|             |        | 1                | 0            | 19.3               | 18.9       | 18.9       | 0.0 | 20.5             | 19.4               | 19.0       | 19.1       | 0.0 | 20.5             |
|             |        | 1                | 3            | 19.1               | 18.8       | 19.1       | 0.0 | 20.5             | 19.2               | 18.8       | 19.0       | 0.0 | 20.5             |
|             |        | 1                | 5            | 19.4               | 18.9       | 19.1       | 0.0 | 20.5             | 19.5               | 18.9       | 19.0       | 0.0 | 20.5             |
|             |        | 3                | 0            | 19.3               | 18.9       | 18.8       | 0.0 | 20.5             | 19.3               | 18.9       | 18.7       | 0.0 | 20.5             |
|             |        | 3                | 1            | 19.4               | 18.8       | 18.9       | 0.0 | 20.5             | 19.3               | 18.8       | 18.8       | 0.0 | 20.5             |
|             | 256QAM | 3                | 3            | 19.4               | 18.9       | 18.8       | 0.0 | 20.5             | 19.3               | 18.9       | 18.7       | 0.0 | 20.5             |
|             |        | 6                | 0            | 19.4               | 18.9       | 18.6       | 0.0 | 20.5             | 19.4               | 19.0       | 18.6       | 0.0 | 20.5             |
|             |        | 1                | 0            | 19.4               | 18.9       | 18.6       | 0.0 | 20.5             | 19.2               | 19.2       | 18.9       | 0.0 | 20.5             |
|             |        | 1                | 3            | 19.1               | 19.0       | 18.7       | 0.0 | 20.5             | 18.9               | 19.0       | 18.8       | 0.0 | 20.5             |
|             |        | 1                | 5            | 19.6               | 19.1       | 18.8       | 0.0 | 20.5             | 19.1               | 19.0       | 18.9       | 0.0 | 20.5             |
|             |        | 3                | 0            | 19.3               | 18.9       | 18.6       | 0.0 | 20.5             | 19.3               | 19.0       | 18.8       | 0.0 | 20.5             |
| 1.4 MHz     | 64QAM  | 3                | 1            | 19.3               | 19.0       | 18.6       | 0.0 | 20.5             | 19.4               | 19.0       | 18.9       | 0.0 | 20.5             |
|             |        | 3                | 3            | 19.3               | 18.9       | 18.9       | 0.0 | 20.5             | 19.4               | 19.2       | 18.9       | 0.0 | 20.5             |
|             |        | 6                | 0            | 19.2               | 19.0       | 18.9       | 0.0 | 20.5             | 19.3               | 19.1       | 18.8       | 0.0 | 20.5             |
|             | 256QAM | 1                | 0            | 19.3               | 18.8       | 18.7       | 1.0 | 19.5             | 19.3               | 18.9       | 18.8       | 1.0 | 19.5             |
|             |        | 1                | 3            | 19.0               | 18.9       | 18.5       | 1.0 | 19.5             | 19.5               | 18.8       | 18.9       | 1.0 | 19.5             |
|             |        | 1                | 5            | 19.3               | 18.9       | 18.9       | 1.0 | 19.5             | 19.3               | 18.9       | 18.6       | 1.0 | 19.5             |
|             |        | 3                | 0            | 19.2               | 18.7       | 18.6       | 1.0 | 19.5             | 19.3               | 18.7       | 18.6       | 1.0 | 19.5             |
|             |        | 3                | 1            | 19.3               | 18.8       | 18.7       | 1.0 | 19.5             | 19.3               | 18.8       | 18.6       | 1.0 | 19.5             |
|             |        | 3                | 3            | 19.2               | 18.7       | 18.7       | 1.0 | 19.5             | 19.2               | 18.7       | 18.6       | 1.0 | 19.5             |
|             |        | 6                | 0            | 18.8               | 18.2       | 18.1       | 1.0 | 19.5             | 18.8               | 18.3       | 18.2       | 1.0 | 19.5             |

**LTE Band 66 Measured Results**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Reduced Average Power (dBm)<br>Hotspot back-off |          |            |     |                  | Reduced Average Power (dBm)<br>Proximity sensor back-off |          |            |     |                  |
|-------------|--------|------------------|--------------|-------------------------------------------------|----------|------------|-----|------------------|----------------------------------------------------------|----------|------------|-----|------------------|
|             |        |                  |              | Measured Pwr (dBm)                              |          |            | MFR | Tune-up<br>Limit | Measured Pwr (dBm)                                       |          |            | MFR | Tune-up<br>Limit |
|             |        |                  |              | 132072                                          | 132322   | 132572     |     |                  | 132072                                                   | 132322   | 132572     |     |                  |
|             |        |                  |              | 1720 MHz                                        | 1745 MHz | 1770 MHz   |     |                  | 1720 MHz                                                 | 1745 MHz | 1770 MHz   |     |                  |
| 20 MHz      | QPSK   | 1                | 0            | 20.1                                            | 20.3     | 20.2       | 0.0 | 21.5             | 20.1                                                     | 20.4     | 20.2       | 0.0 | 21.5             |
|             |        | 1                | 49           | 19.8                                            | 20.3     | 20.1       | 0.0 | 21.5             | 19.9                                                     | 20.3     | 20.1       | 0.0 | 21.5             |
|             |        | 1                | 99           | 20.0                                            | 20.3     | 20.2       | 0.0 | 21.5             | 20.1                                                     | 20.3     | 20.2       | 0.0 | 21.5             |
|             |        | 50               | 0            | 20.1                                            | 20.3     | 20.1       | 0.0 | 21.5             | 20.1                                                     | 20.3     | 20.1       | 0.0 | 21.5             |
|             |        | 50               | 24           | 20.0                                            | 20.3     | 20.1       | 0.0 | 21.5             | 20.1                                                     | 20.3     | 20.1       | 0.0 | 21.5             |
|             |        | 50               | 50           | 20.0                                            | 20.3     | 20.1       | 0.0 | 21.5             | 20.0                                                     | 20.3     | 20.2       | 0.0 | 21.5             |
|             |        | 100              | 0            | 20.0                                            | 20.3     | 20.1       | 0.0 | 21.5             | 20.1                                                     | 20.3     | 20.1       | 0.0 | 21.5             |
|             | 16QAM  | 1                | 0            | 20.4                                            | 20.7     | 20.4       | 0.0 | 21.5             | 20.5                                                     | 20.7     | 20.5       | 0.0 | 21.5             |
|             |        | 1                | 49           | 20.2                                            | 20.6     | 20.2       | 0.0 | 21.5             | 20.2                                                     | 20.5     | 20.2       | 0.0 | 21.5             |
|             |        | 1                | 99           | 20.3                                            | 20.7     | 20.4       | 0.0 | 21.5             | 20.4                                                     | 20.6     | 20.4       | 0.0 | 21.5             |
|             |        | 50               | 0            | 20.0                                            | 20.3     | 20.1       | 0.0 | 21.5             | 20.0                                                     | 20.3     | 20.1       | 0.0 | 21.5             |
|             |        | 50               | 24           | 20.0                                            | 20.3     | 20.1       | 0.0 | 21.5             | 20.0                                                     | 20.3     | 20.1       | 0.0 | 21.5             |
|             |        | 50               | 50           | 20.0                                            | 20.3     | 20.1       | 0.0 | 21.5             | 20.0                                                     | 20.3     | 20.1       | 0.0 | 21.5             |
|             |        | 100              | 0            | 20.1                                            | 20.3     | 20.1       | 0.0 | 21.5             | 20.1                                                     | 20.3     | 20.1       | 0.0 | 21.5             |
|             | 64QAM  | 1                | 0            | 20.6                                            | 20.3     | 20.2       | 0.0 | 21.5             | 20.6                                                     | 20.5     | 20.3       | 0.0 | 21.5             |
|             |        | 1                | 49           | 20.4                                            | 20.3     | 20.2       | 0.0 | 21.5             | 20.5                                                     | 20.5     | 20.3       | 0.0 | 21.5             |
|             |        | 1                | 99           | 20.5                                            | 20.3     | 20.2       | 0.0 | 21.5             | 20.7                                                     | 20.5     | 20.3       | 0.0 | 21.5             |
|             |        | 50               | 0            | 19.7                                            | 20.2     | 20.2       | 0.0 | 21.5             | 19.8                                                     | 20.6     | 20.3       | 0.0 | 21.5             |
|             |        | 50               | 24           | 19.8                                            | 20.3     | 20.3       | 0.0 | 21.5             | 19.8                                                     | 20.5     | 20.3       | 0.0 | 21.5             |
|             |        | 50               | 50           | 19.8                                            | 20.3     | 20.3       | 0.0 | 21.5             | 19.8                                                     | 20.6     | 20.3       | 0.0 | 21.5             |
|             |        | 100              | 0            | 19.8                                            | 20.2     | 20.3       | 0.0 | 21.5             | 19.8                                                     | 20.5     | 20.3       | 0.0 | 21.5             |
|             | 256QAM | 1                | 0            | 17.8                                            | 18.1     | 18.4       | 2.0 | 19.5             | 17.8                                                     | 18.1     | 18.4       | 2.0 | 19.5             |
|             |        | 1                | 49           | 18.0                                            | 18.0     | 18.2       | 2.0 | 19.5             | 18.0                                                     | 18.0     | 18.3       | 2.0 | 19.5             |
|             |        | 1                | 99           | 18.1                                            | 18.1     | 18.4       | 2.0 | 19.5             | 18.2                                                     | 18.2     | 18.4       | 2.0 | 19.5             |
|             |        | 50               | 0            | 17.7                                            | 17.7     | 18.1       | 2.0 | 19.5             | 17.7                                                     | 17.7     | 18.1       | 2.0 | 19.5             |
|             |        | 50               | 24           | 17.7                                            | 17.7     | 18.1       | 2.0 | 19.5             | 17.7                                                     | 17.7     | 18.1       | 2.0 | 19.5             |
|             |        | 50               | 50           | 17.7                                            | 17.7     | 18.1       | 2.0 | 19.5             | 17.7                                                     | 17.7     | 18.1       | 2.0 | 19.5             |
|             |        | 100              | 0            | 17.7                                            | 17.7     | 18.1       | 2.0 | 19.5             | 17.7                                                     | 17.7     | 18.1       | 2.0 | 19.5             |
| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm)                              |          |            | MFR | Tune-up<br>Limit | Measured Pwr (dBm)                                       |          |            | MFR | Tune-up<br>Limit |
|             |        |                  |              | 132047                                          | 132322   | 132597     |     |                  | 132047                                                   | 132322   | 132597     |     |                  |
|             |        |                  |              | 1717.5 MHz                                      | 1745 MHz | 1772.5 MHz |     |                  | 1717.5 MHz                                               | 1745 MHz | 1772.5 MHz |     |                  |
|             |        |                  |              |                                                 |          |            |     |                  |                                                          |          |            |     |                  |
| 15 MHz      | QPSK   | 1                | 0            | 20.2                                            | 20.4     | 20.4       | 0.0 | 21.5             | 20.3                                                     | 20.4     | 20.4       | 0.0 | 21.5             |
|             |        | 1                | 37           | 20.2                                            | 20.2     | 20.5       | 0.0 | 21.5             | 20.3                                                     | 20.3     | 20.6       | 0.0 | 21.5             |
|             |        | 1                | 74           | 20.1                                            | 20.4     | 20.3       | 0.0 | 21.5             | 20.2                                                     | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 36               | 0            | 20.2                                            | 20.4     | 20.3       | 0.0 | 21.5             | 20.2                                                     | 20.4     | 20.4       | 0.0 | 21.5             |
|             |        | 36               | 20           | 20.2                                            | 20.4     | 20.3       | 0.0 | 21.5             | 20.2                                                     | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 36               | 39           | 20.1                                            | 20.4     | 20.2       | 0.0 | 21.5             | 20.2                                                     | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 75               | 0            | 20.2                                            | 20.4     | 20.3       | 0.0 | 21.5             | 20.2                                                     | 20.4     | 20.3       | 0.0 | 21.5             |
|             | 16QAM  | 1                | 0            | 20.5                                            | 20.7     | 20.7       | 0.0 | 21.5             | 20.4                                                     | 20.6     | 20.7       | 0.0 | 21.5             |
|             |        | 1                | 37           | 20.5                                            | 20.6     | 20.7       | 0.0 | 21.5             | 20.4                                                     | 20.7     | 20.8       | 0.0 | 21.5             |
|             |        | 1                | 74           | 20.4                                            | 20.7     | 20.6       | 0.0 | 21.5             | 20.4                                                     | 20.6     | 20.7       | 0.0 | 21.5             |
|             |        | 36               | 0            | 20.1                                            | 20.3     | 20.3       | 0.0 | 21.5             | 20.2                                                     | 20.4     | 20.4       | 0.0 | 21.5             |
|             |        | 36               | 20           | 20.1                                            | 20.3     | 20.3       | 0.0 | 21.5             | 20.2                                                     | 20.4     | 20.4       | 0.0 | 21.5             |
|             |        | 36               | 39           | 20.1                                            | 20.3     | 20.3       | 0.0 | 21.5             | 20.2                                                     | 20.4     | 20.4       | 0.0 | 21.5             |
|             |        | 75               | 0            | 20.1                                            | 20.3     | 20.3       | 0.0 | 21.5             | 20.2                                                     | 20.4     | 20.3       | 0.0 | 21.5             |
|             | 64QAM  | 1                | 0            | 20.2                                            | 20.7     | 20.4       | 0.0 | 21.5             | 20.2                                                     | 20.5     | 20.3       | 0.0 | 21.5             |
|             |        | 1                | 37           | 20.3                                            | 20.7     | 20.3       | 0.0 | 21.5             | 20.1                                                     | 20.5     | 20.3       | 0.0 | 21.5             |
|             |        | 1                | 74           | 20.2                                            | 20.7     | 20.4       | 0.0 | 21.5             | 20.2                                                     | 20.5     | 20.3       | 0.0 | 21.5             |
|             |        | 36               | 0            | 19.6                                            | 20.7     | 20.4       | 0.0 | 21.5             | 19.6                                                     | 20.5     | 20.3       | 0.0 | 21.5             |
|             |        | 36               | 20           | 19.6                                            | 20.7     | 20.3       | 0.0 | 21.5             | 19.6                                                     | 20.5     | 20.3       | 0.0 | 21.5             |
|             |        | 36               | 39           | 19.5                                            | 20.7     | 20.4       | 0.0 | 21.5             | 19.6                                                     | 20.5     | 20.3       | 0.0 | 21.5             |
|             |        | 75               | 0            | 19.6                                            | 20.7     | 20.3       | 0.0 | 21.5             | 19.6                                                     | 20.5     | 20.3       | 0.0 | 21.5             |
|             | 256QAM | 1                | 0            | 18.0                                            | 17.9     | 18.1       | 2.0 | 19.5             | 17.8                                                     | 18.0     | 18.4       | 2.0 | 19.5             |
|             |        | 1                | 37           | 18.1                                            | 18.0     | 18.3       | 2.0 | 19.5             | 18.0                                                     | 17.9     | 18.4       | 2.0 | 19.5             |
|             |        | 1                | 74           | 18.1                                            | 17.9     | 18.1       | 2.0 | 19.5             | 18.0                                                     | 18.0     | 18.4       | 2.0 | 19.5             |
|             |        | 36               | 0            | 18.0                                            | 17.8     | 18.1       | 2.0 | 19.5             | 17.8                                                     | 17.8     | 18.1       | 2.0 | 19.5             |
|             |        | 36               | 20           | 18.0                                            | 17.7     | 18.1       | 2.0 | 19.5             | 17.8                                                     | 17.8     | 18.1       | 2.0 | 19.5             |
|             |        | 36               | 39           | 18.0                                            | 17.7     | 18.1       | 2.0 | 19.5             | 17.8                                                     | 17.8     | 18.1       | 2.0 | 19.5             |
|             |        | 75               | 0            | 18.0                                            | 17.8     | 18.2       | 2.0 | 19.5             | 17.8                                                     | 17.8     | 18.1       | 2.0 | 19.5             |

**LTE Band 66 Measured Results (Continued)**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |          |            | MPR | Tune-up<br>Limit | Measured Pwr (dBm) |          |            | MPR | Tune-up<br>Limit |
|-------------|--------|------------------|--------------|--------------------|----------|------------|-----|------------------|--------------------|----------|------------|-----|------------------|
|             |        |                  |              | 132022             | 132322   | 132622     |     |                  | 132022             | 132322   | 132622     |     |                  |
|             |        |                  |              | 1715 MHz           | 1745 MHz | 1775 MHz   |     |                  | 1715 MHz           | 1745 MHz | 1775 MHz   |     |                  |
| 10 MHz      | QPSK   | 1                | 0            | 20.2               | 20.4     | 20.2       | 0.0 | 21.5             | 20.2               | 20.5     | 20.3       | 0.0 | 21.5             |
|             |        | 1                | 25           | 20.1               | 20.2     | 20.1       | 0.0 | 21.5             | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             |
|             |        | 1                | 49           | 20.2               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 25               | 0            | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 25               | 12           | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.2       | 0.0 | 21.5             |
|             |        | 25               | 25           | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.2       | 0.0 | 21.5             |
|             |        | 50               | 0            | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.3       | 0.0 | 21.5             |
|             | 16QAM  | 1                | 0            | 20.2               | 20.6     | 20.5       | 0.0 | 21.5             | 20.4               | 20.7     | 20.6       | 0.0 | 21.5             |
|             |        | 1                | 25           | 20.1               | 20.5     | 20.4       | 0.0 | 21.5             | 20.3               | 20.5     | 20.6       | 0.0 | 21.5             |
|             |        | 1                | 49           | 20.2               | 20.6     | 20.6       | 0.0 | 21.5             | 20.4               | 20.6     | 20.7       | 0.0 | 21.5             |
|             |        | 25               | 0            | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 25               | 12           | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 25               | 25           | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 50               | 0            | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.2       | 0.0 | 21.5             |
|             | 64QAM  | 1                | 0            | 20.2               | 20.6     | 20.2       | 0.0 | 21.5             | 20.3               | 20.4     | 20.2       | 0.0 | 21.5             |
|             |        | 1                | 25           | 20.0               | 20.6     | 20.2       | 0.0 | 21.5             | 20.1               | 20.4     | 20.2       | 0.0 | 21.5             |
|             |        | 1                | 49           | 20.1               | 20.6     | 20.2       | 0.0 | 21.5             | 20.1               | 20.4     | 20.2       | 0.0 | 21.5             |
|             |        | 25               | 0            | 19.6               | 20.6     | 20.2       | 0.0 | 21.5             | 19.6               | 20.4     | 20.2       | 0.0 | 21.5             |
|             |        | 25               | 12           | 19.6               | 20.6     | 20.2       | 0.0 | 21.5             | 19.6               | 20.4     | 20.2       | 0.0 | 21.5             |
|             |        | 25               | 25           | 19.5               | 20.6     | 20.2       | 0.0 | 21.5             | 19.6               | 20.4     | 20.2       | 0.0 | 21.5             |
|             |        | 50               | 0            | 19.6               | 20.6     | 20.2       | 0.0 | 21.5             | 19.6               | 20.4     | 20.2       | 0.0 | 21.5             |
|             | 256QAM | 1                | 0            | 17.8               | 17.9     | 18.4       | 2.0 | 19.5             | 17.8               | 18.0     | 18.2       | 2.0 | 19.5             |
|             |        | 1                | 25           | 17.9               | 17.9     | 18.4       | 2.0 | 19.5             | 18.0               | 18.0     | 18.3       | 2.0 | 19.5             |
|             |        | 1                | 49           | 17.8               | 17.7     | 18.3       | 2.0 | 19.5             | 17.9               | 17.9     | 18.1       | 2.0 | 19.5             |
|             |        | 25               | 0            | 17.8               | 17.7     | 18.1       | 2.0 | 19.5             | 17.7               | 17.7     | 18.1       | 2.0 | 19.5             |
|             |        | 25               | 12           | 17.7               | 17.7     | 18.1       | 2.0 | 19.5             | 17.7               | 17.7     | 18.1       | 2.0 | 19.5             |
|             |        | 25               | 25           | 17.7               | 17.7     | 18.1       | 2.0 | 19.5             | 17.7               | 17.7     | 18.1       | 2.0 | 19.5             |
|             |        | 50               | 0            | 17.7               | 17.7     | 18.1       | 2.0 | 19.5             | 17.7               | 17.7     | 18.1       | 2.0 | 19.5             |
| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |          |            | MPR | Tune-up<br>Limit | Measured Pwr (dBm) |          |            | MPR | Tune-up<br>Limit |
|             |        |                  |              | 131997             | 132322   | 132647     |     |                  | 131997             | 132322   | 132647     |     |                  |
|             |        |                  |              | 1712.5 MHz         | 1745 MHz | 1777.5 MHz |     |                  | 1712.5 MHz         | 1745 MHz | 1777.5 MHz |     |                  |
| 5 MHz       | QPSK   | 1                | 0            | 20.1               | 20.2     | 20.2       | 0.0 | 21.5             | 20.1               | 20.3     | 20.3       | 0.0 | 21.5             |
|             |        | 1                | 12           | 20.2               | 20.3     | 20.2       | 0.0 | 21.5             | 20.3               | 20.3     | 20.5       | 0.0 | 21.5             |
|             |        | 1                | 24           | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.1               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 12               | 0            | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 12               | 7            | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.1               | 20.4     | 20.2       | 0.0 | 21.5             |
|             |        | 12               | 13           | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 25               | 0            | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.2       | 0.0 | 21.5             |
|             | 16QAM  | 1                | 0            | 20.4               | 20.7     | 20.4       | 0.0 | 21.5             | 20.5               | 20.6     | 20.5       | 0.0 | 21.5             |
|             |        | 1                | 12           | 20.3               | 20.7     | 20.4       | 0.0 | 21.5             | 20.5               | 20.7     | 20.5       | 0.0 | 21.5             |
|             |        | 1                | 24           | 20.4               | 20.6     | 20.4       | 0.0 | 21.5             | 20.5               | 20.6     | 20.5       | 0.0 | 21.5             |
|             |        | 12               | 0            | 20.2               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 12               | 7            | 20.2               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 12               | 13           | 20.2               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 25               | 0            | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.3       | 0.0 | 21.5             |
|             | 64QAM  | 1                | 0            | 20.1               | 20.3     | 20.4       | 0.0 | 21.5             | 20.3               | 20.4     | 20.4       | 0.0 | 21.5             |
|             |        | 1                | 12           | 20.0               | 20.3     | 20.3       | 0.0 | 21.5             | 20.1               | 20.4     | 20.4       | 0.0 | 21.5             |
|             |        | 1                | 24           | 20.2               | 20.3     | 20.4       | 0.0 | 21.5             | 20.3               | 20.4     | 20.4       | 0.0 | 21.5             |
|             |        | 12               | 0            | 19.5               | 20.3     | 20.3       | 0.0 | 21.5             | 19.6               | 20.4     | 20.4       | 0.0 | 21.5             |
|             |        | 12               | 7            | 19.5               | 20.3     | 20.4       | 0.0 | 21.5             | 19.6               | 20.5     | 20.4       | 0.0 | 21.5             |
|             |        | 12               | 13           | 19.5               | 20.3     | 20.4       | 0.0 | 21.5             | 19.6               | 20.5     | 20.4       | 0.0 | 21.5             |
|             |        | 25               | 0            | 19.5               | 20.3     | 20.4       | 0.0 | 21.5             | 19.5               | 20.4     | 20.4       | 0.0 | 21.5             |
|             | 256QAM | 1                | 0            | 17.8               | 18.0     | 18.3       | 2.0 | 19.5             | 17.8               | 18.0     | 18.3       | 2.0 | 19.5             |
|             |        | 1                | 12           | 18.0               | 18.0     | 18.3       | 2.0 | 19.5             | 18.0               | 18.0     | 18.2       | 2.0 | 19.5             |
|             |        | 1                | 24           | 18.0               | 18.0     | 18.3       | 2.0 | 19.5             | 18.0               | 18.0     | 18.2       | 2.0 | 19.5             |
|             |        | 12               | 0            | 17.8               | 17.8     | 18.1       | 2.0 | 19.5             | 17.8               | 17.8     | 18.1       | 2.0 | 19.5             |
|             |        | 12               | 7            | 17.8               | 17.8     | 18.1       | 2.0 | 19.5             | 17.8               | 17.8     | 18.1       | 2.0 | 19.5             |
|             |        | 12               | 13           | 17.8               | 17.8     | 18.1       | 2.0 | 19.5             | 17.8               | 17.8     | 18.1       | 2.0 | 19.5             |
|             |        | 25               | 0            | 17.7               | 17.7     | 18.1       | 2.0 | 19.5             | 17.7               | 17.7     | 18.1       | 2.0 | 19.5             |

**LTE Band 66 Measured Results (Continued)**

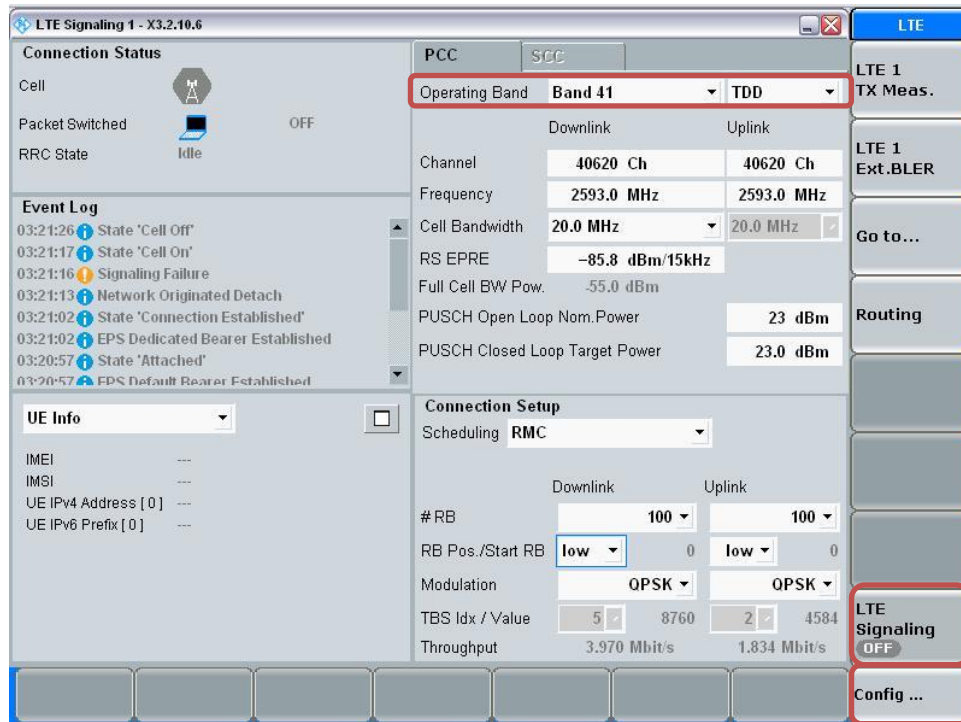
| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |          |            | MPR | Tune-up<br>Limit | Measured Pwr (dBm) |          |            | MPR | Tune-up<br>Limit |
|-------------|--------|------------------|--------------|--------------------|----------|------------|-----|------------------|--------------------|----------|------------|-----|------------------|
|             |        |                  |              | 131987             | 132322   | 132657     |     |                  | 131987             | 132322   | 132657     |     |                  |
|             |        |                  |              | 1711.5 MHz         | 1745 MHz | 1778.5 MHz |     |                  | 1711.5 MHz         | 1745 MHz | 1778.5 MHz |     |                  |
| 3 MHz       | QPSK   | 1                | 0            | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 1                | 8            | 20.1               | 20.3     | 20.5       | 0.0 | 21.5             | 20.3               | 20.3     | 20.5       | 0.0 | 21.5             |
|             |        | 1                | 14           | 20.1               | 20.2     | 20.3       | 0.0 | 21.5             | 20.2               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 8                | 0            | 20.0               | 20.2     | 20.1       | 0.0 | 21.5             | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             |
|             |        | 8                | 4            | 20.0               | 20.2     | 20.1       | 0.0 | 21.5             | 20.1               | 20.4     | 20.2       | 0.0 | 21.5             |
|             |        | 8                | 7            | 20.0               | 20.2     | 20.1       | 0.0 | 21.5             | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             |
|             | 16QAM  | 15               | 0            | 20.0               | 20.3     | 20.1       | 0.0 | 21.5             | 20.1               | 20.4     | 20.2       | 0.0 | 21.5             |
|             |        | 1                | 0            | 20.3               | 20.5     | 20.3       | 0.0 | 21.5             | 20.3               | 20.8     | 20.6       | 0.0 | 21.5             |
|             |        | 1                | 8            | 20.4               | 20.5     | 20.6       | 0.0 | 21.5             | 20.4               | 20.8     | 20.6       | 0.0 | 21.5             |
|             |        | 1                | 14           | 20.4               | 20.6     | 20.6       | 0.0 | 21.5             | 20.4               | 20.8     | 20.6       | 0.0 | 21.5             |
|             |        | 8                | 0            | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 8                | 4            | 20.0               | 20.3     | 20.2       | 0.0 | 21.5             | 20.2               | 20.4     | 20.3       | 0.0 | 21.5             |
|             | 64QAM  | 8                | 7            | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.1               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 15               | 0            | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             | 20.1               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 1                | 0            | 20.3               | 20.3     | 20.3       | 0.0 | 21.5             | 20.1               | 20.6     | 20.3       | 0.0 | 21.5             |
|             |        | 1                | 8            | 20.2               | 20.3     | 20.1       | 0.0 | 21.5             | 19.9               | 20.6     | 20.4       | 0.0 | 21.5             |
|             |        | 1                | 14           | 20.2               | 20.5     | 20.3       | 0.0 | 21.5             | 20.1               | 20.6     | 20.4       | 0.0 | 21.5             |
|             |        | 8                | 0            | 19.5               | 20.5     | 20.3       | 0.0 | 21.5             | 19.5               | 20.6     | 20.3       | 0.0 | 21.5             |
|             | 256QAM | 8                | 4            | 19.5               | 20.3     | 20.1       | 0.0 | 21.5             | 19.5               | 20.6     | 20.4       | 0.0 | 21.5             |
|             |        | 8                | 7            | 19.5               | 20.4     | 20.1       | 0.0 | 21.5             | 19.5               | 20.6     | 20.3       | 0.0 | 21.5             |
|             |        | 15               | 0            | 19.6               | 20.4     | 20.1       | 0.0 | 21.5             | 19.6               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 1                | 0            | 18.8               | 18.0     | 18.3       | 2.0 | 19.5             | 17.8               | 18.0     | 18.3       | 2.0 | 19.5             |
|             |        | 1                | 8            | 18.0               | 18.0     | 18.3       | 2.0 | 19.5             | 18.0               | 18.0     | 18.3       | 2.0 | 19.5             |
|             |        | 1                | 14           | 18.0               | 18.0     | 18.3       | 2.0 | 19.5             | 18.0               | 18.0     | 18.3       | 2.0 | 19.5             |
|             |        | 8                | 0            | 17.8               | 17.8     | 18.1       | 2.0 | 19.5             | 17.8               | 17.8     | 18.1       | 2.0 | 19.5             |
|             |        | 8                | 4            | 17.8               | 17.8     | 18.1       | 2.0 | 19.5             | 17.8               | 17.8     | 18.1       | 2.0 | 19.5             |
|             |        | 8                | 7            | 17.8               | 17.7     | 18.1       | 2.0 | 19.5             | 17.8               | 17.8     | 18.1       | 2.0 | 19.5             |
|             |        | 15               | 0            | 17.7               | 17.7     | 18.1       | 2.0 | 19.5             | 17.7               | 17.7     | 18.1       | 2.0 | 19.5             |
| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |          |            | MPR | Tune-up<br>Limit | Measured Pwr (dBm) |          |            | MPR | Tune-up<br>Limit |
|             |        |                  |              | 131979             | 132322   | 132665     |     |                  | 131979             | 132322   | 132665     |     |                  |
|             |        |                  |              | 1710.7 MHz         | 1745 MHz | 1779.3 MHz |     |                  | 1710.7 MHz         | 1745 MHz | 1779.3 MHz |     |                  |
| 1.4 MHz     | QPSK   | 1                | 0            | 20.0               | 20.2     | 20.1       | 0.0 | 21.5             | 20.1               | 20.4     | 20.3       | 0.0 | 21.5             |
|             |        | 1                | 3            | 19.9               | 20.1     | 20.1       | 0.0 | 21.5             | 20.0               | 20.2     | 20.2       | 0.0 | 21.5             |
|             |        | 1                | 5            | 20.0               | 20.2     | 20.2       | 0.0 | 21.5             | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             |
|             |        | 3                | 0            | 19.9               | 20.1     | 20.0       | 0.0 | 21.5             | 20.1               | 20.2     | 20.1       | 0.0 | 21.5             |
|             |        | 3                | 1            | 20.1               | 20.0     | 20.1       | 0.0 | 21.5             | 20.1               | 20.2     | 20.1       | 0.0 | 21.5             |
|             |        | 3                | 3            | 19.9               | 20.2     | 20.1       | 0.0 | 21.5             | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             |
|             | 16QAM  | 6                | 0            | 20.0               | 20.2     | 20.1       | 0.0 | 21.5             | 20.1               | 20.3     | 20.2       | 0.0 | 21.5             |
|             |        | 1                | 0            | 20.0               | 20.5     | 20.7       | 0.0 | 21.5             | 20.2               | 20.5     | 20.7       | 0.0 | 21.5             |
|             |        | 1                | 3            | 19.8               | 20.4     | 20.4       | 0.0 | 21.5             | 20.1               | 20.4     | 20.5       | 0.0 | 21.5             |
|             |        | 1                | 5            | 20.1               | 20.5     | 20.6       | 0.0 | 21.5             | 20.1               | 20.4     | 20.6       | 0.0 | 21.5             |
|             |        | 3                | 0            | 20.1               | 20.2     | 20.1       | 0.0 | 21.5             | 20.2               | 20.2     | 20.3       | 0.0 | 21.5             |
|             |        | 3                | 1            | 20.0               | 20.1     | 20.2       | 0.0 | 21.5             | 20.0               | 20.3     | 20.4       | 0.0 | 21.5             |
|             | 64QAM  | 3                | 3            | 20.1               | 20.2     | 20.2       | 0.0 | 21.5             | 20.1               | 20.2     | 20.3       | 0.0 | 21.5             |
|             |        | 6                | 0            | 20.1               | 20.3     | 20.1       | 0.0 | 21.5             | 20.3               | 20.4     | 20.2       | 0.0 | 21.5             |
|             |        | 1                | 0            | 20.3               | 20.5     | 20.0       | 0.0 | 21.5             | 20.2               | 20.5     | 20.1       | 0.0 | 21.5             |
|             |        | 1                | 3            | 20.0               | 20.5     | 19.9       | 0.0 | 21.5             | 20.0               | 20.7     | 20.4       | 0.0 | 21.5             |
|             |        | 1                | 5            | 20.3               | 20.5     | 20.0       | 0.0 | 21.5             | 20.3               | 20.7     | 20.4       | 0.0 | 21.5             |
|             |        | 3                | 0            | 20.0               | 20.5     | 20.1       | 0.0 | 21.5             | 20.0               | 20.7     | 20.3       | 0.0 | 21.5             |
|             | 256QAM | 3                | 1            | 20.0               | 20.5     | 20.1       | 0.0 | 21.5             | 20.1               | 20.7     | 20.4       | 0.0 | 21.5             |
|             |        | 3                | 3            | 20.1               | 20.7     | 20.1       | 0.0 | 21.5             | 20.1               | 20.7     | 20.1       | 0.0 | 21.5             |
|             |        | 6                | 0            | 19.5               | 20.4     | 20.1       | 0.0 | 21.5             | 19.5               | 20.7     | 20.4       | 0.0 | 21.5             |
|             |        | 1                | 0            | 17.8               | 18.1     | 18.2       | 2.0 | 19.5             | 17.8               | 18.1     | 18.2       | 2.0 | 19.5             |
|             |        | 1                | 3            | 18.0               | 18.0     | 18.2       | 2.0 | 19.5             | 18.1               | 18.1     | 18.3       | 2.0 | 19.5             |
|             |        | 1                | 5            | 18.1               | 18.0     | 18.2       | 2.0 | 19.5             | 18.1               | 18.1     | 18.3       | 2.0 | 19.5             |
|             |        | 3                | 0            | 17.9               | 17.9     | 18.2       | 2.0 | 19.5             | 17.9               | 17.9     | 18.1       | 2.0 | 19.5             |
|             |        | 3                | 1            | 17.9               | 17.9     | 18.2       | 2.0 | 19.5             | 17.9               | 17.9     | 18.1       | 2.0 | 19.5             |
|             |        | 3                | 3            | 17.9               | 17.9     | 18.2       | 2.0 | 19.5             | 17.9               | 17.9     | 18.1       | 2.0 | 19.5             |
|             |        | 6                | 0            | 17.9               | 17.9     | 18.1       | 2.0 | 19.5             | 17.9               | 17.9     | 18.2       | 2.0 | 19.5             |

## LTE Band TDD Measured Results

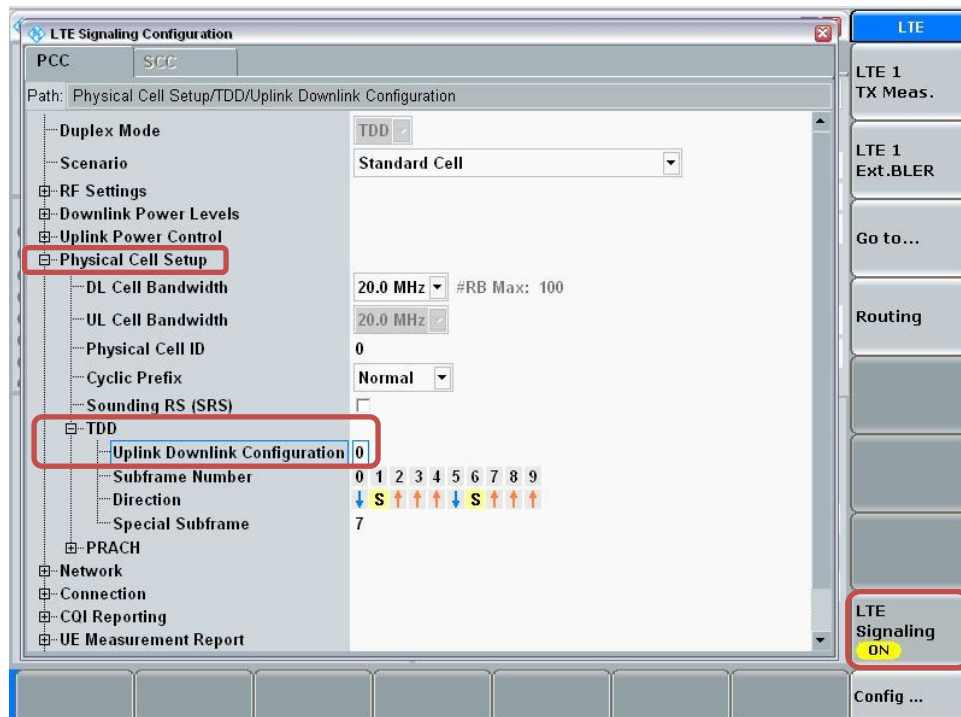
### Procedure used to establish SAR test signal for LTE TDD Band

Set to CMW-500 with following parameters:

- Turn the LTE Signaling off using “ON | OFF” key
- Operating Band: Select Band 41 and TDD
- Go to “Config....”

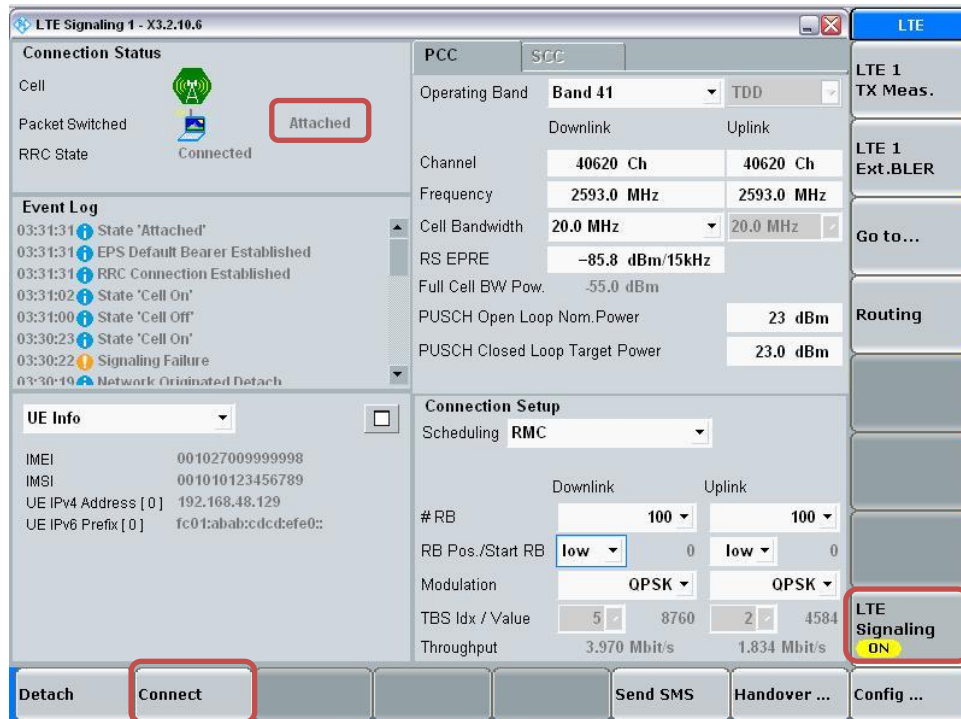


- Go to “Physical Cell Setup”
- Select “TDD” and Set “Uplink Downlink Configuration” to “0”
- Turn the cell on using “ON | OFF” key

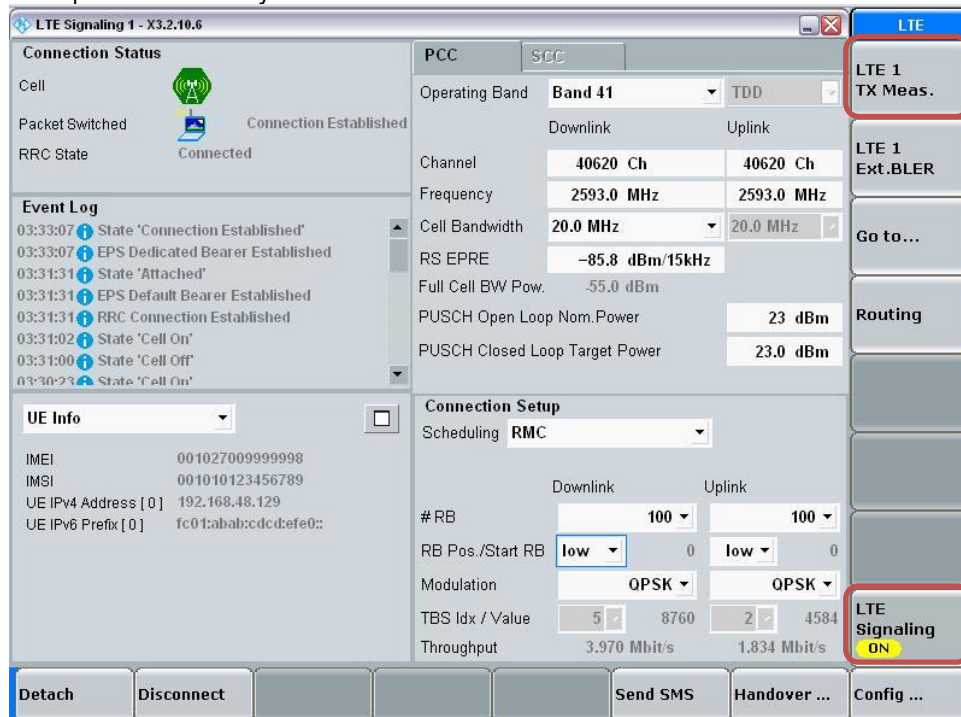


**Connect to EUT**

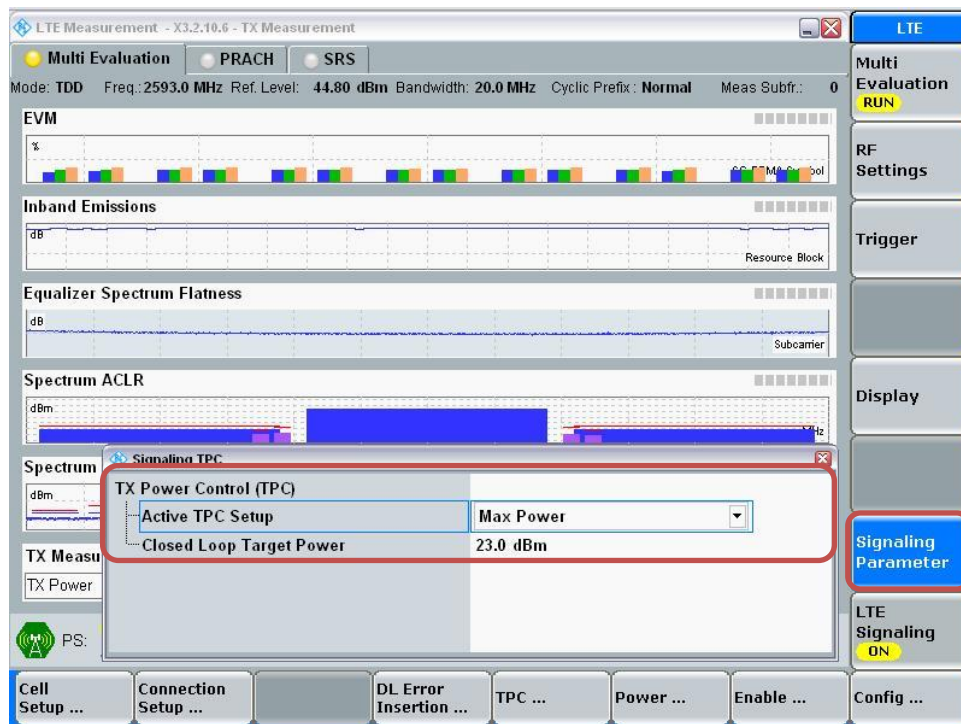
- Turn the cell on using “ON | OFF” key
- After EUT is Attached
- Select “Connect”

**Max Power Setting**

- Select “LTE 1 TX Meas.”
- Press “RESTART | STOP” Soft key

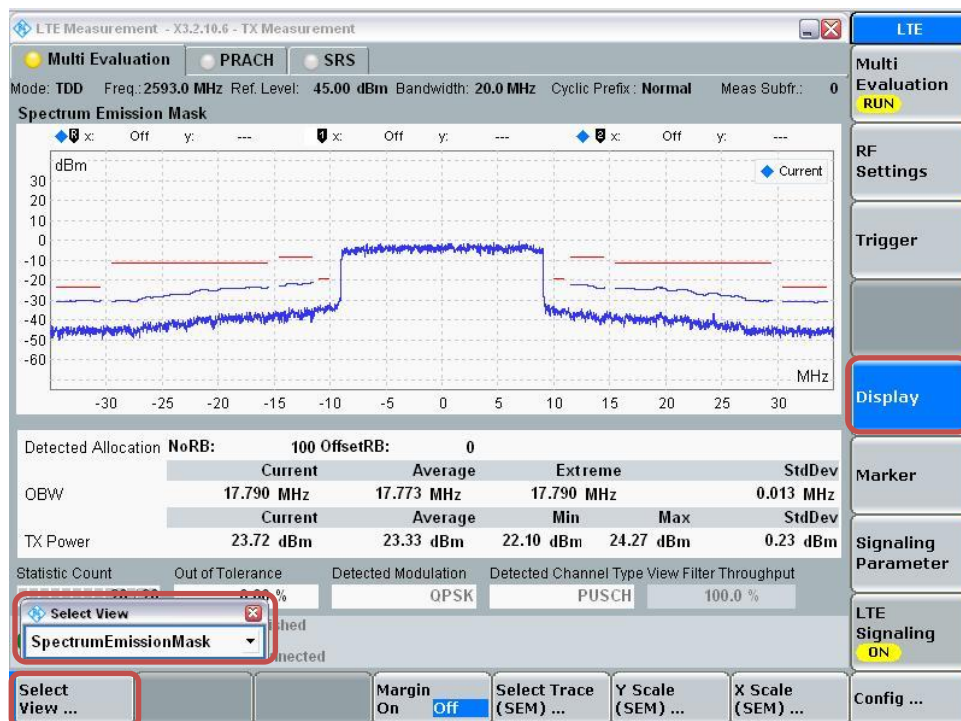


- Select “Signaling Parameter”
- Select “TX Power Control (TPC)” > Select “Active TPC Setup” to “Max Power” > Set “Closed Loop Target Power” to “23 dBm”



### View TX Power

- Go to “Display”
- Select “Select View...”
- Select “Spectrum Emission Mask”



# 1. Max power Results

## LTE Band 41 – Power Class 3 - Measured Results

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Maximum Average Power (dBm) |                     |                   |                     |                   |     |                  |
|-------------|--------|------------------|--------------|-----------------------------|---------------------|-------------------|---------------------|-------------------|-----|------------------|
|             |        |                  |              | Measured Pwr (dBm)          |                     |                   |                     |                   | MPR | Tune-up<br>Limit |
|             |        |                  |              | 39750<br>2506 MHz           | 40185<br>2549.5 MHz | 40620<br>2593 MHz | 41055<br>2636.5 MHz | 41490<br>2680 MHz |     |                  |
| 20 MHz      | QPSK   | 1                | 0            | 21.9                        | 21.6                | 21.6              | 21.6                | 21.6              | 0.0 | 23.5             |
|             |        | 1                | 49           | 21.7                        | 21.5                | 21.4              | 21.5                | 21.4              | 0.0 | 23.5             |
|             |        | 1                | 99           | 21.8                        | 21.5                | 21.5              | 21.5                | 21.4              | 0.0 | 23.5             |
|             |        | 50               | 0            | 20.8                        | 20.6                | 20.6              | 20.5                | 20.5              | 1.0 | 22.5             |
|             |        | 50               | 24           | 20.7                        | 20.6                | 20.4              | 20.5                | 20.5              | 1.0 | 22.5             |
|             |        | 50               | 50           | 20.8                        | 20.5                | 20.4              | 20.5                | 20.4              | 1.0 | 22.5             |
|             |        | 100              | 0            | 20.8                        | 20.5                | 20.4              | 20.5                | 20.5              | 1.0 | 22.5             |
|             | 16QAM  | 1                | 0            | 20.9                        | 20.8                | 20.6              | 20.9                | 20.4              | 1.0 | 22.5             |
|             |        | 1                | 49           | 20.8                        | 20.4                | 20.4              | 20.5                | 20.3              | 1.0 | 22.5             |
|             |        | 1                | 99           | 20.7                        | 20.8                | 20.6              | 20.5                | 20.5              | 1.0 | 22.5             |
|             |        | 50               | 0            | 19.8                        | 19.6                | 19.4              | 19.5                | 19.4              | 2.0 | 21.5             |
|             |        | 50               | 24           | 19.7                        | 19.6                | 19.3              | 19.5                | 19.4              | 2.0 | 21.5             |
|             |        | 50               | 50           | 19.8                        | 19.5                | 19.3              | 19.5                | 19.4              | 2.0 | 21.5             |
|             |        | 100              | 0            | 19.8                        | 19.5                | 19.3              | 19.5                | 19.5              | 2.0 | 21.5             |
|             | 64QAM  | 1                | 0            | 19.8                        | 19.6                | 19.5              | 19.6                | 19.6              | 2.0 | 21.5             |
|             |        | 1                | 49           | 19.7                        | 19.6                | 19.6              | 19.3                | 19.2              | 2.0 | 21.5             |
|             |        | 1                | 99           | 19.6                        | 19.5                | 19.5              | 19.6                | 19.4              | 2.0 | 21.5             |
|             |        | 50               | 0            | 18.8                        | 18.5                | 18.9              | 18.6                | 18.5              | 3.0 | 20.5             |
|             |        | 50               | 24           | 18.8                        | 18.7                | 18.6              | 18.8                | 18.4              | 3.0 | 20.5             |
|             |        | 50               | 50           | 18.8                        | 18.4                | 18.6              | 18.3                | 18.2              | 3.0 | 20.5             |
|             |        | 100              | 0            | 18.8                        | 18.8                | 18.2              | 18.6                | 18.4              | 3.0 | 20.5             |
|             | 256QAM | 1                | 0            | 16.6                        | 16.6                | 16.4              | 16.5                | 16.3              | 5.0 | 18.5             |
|             |        | 1                | 49           | 16.4                        | 16.6                | 16.2              | 16.4                | 16.1              | 5.0 | 18.5             |
|             |        | 1                | 99           | 16.9                        | 16.3                | 16.0              | 16.4                | 16.6              | 5.0 | 18.5             |
|             |        | 50               | 0            | 16.6                        | 16.4                | 16.2              | 16.4                | 16.4              | 5.0 | 18.5             |
|             |        | 50               | 24           | 16.6                        | 16.3                | 16.1              | 16.3                | 16.3              | 5.0 | 18.5             |
|             |        | 50               | 50           | 16.6                        | 16.3                | 16.1              | 16.3                | 16.3              | 5.0 | 18.5             |
|             |        | 100              | 0            | 16.6                        | 16.4                | 16.1              | 16.4                | 16.4              | 5.0 | 18.5             |
| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm)          |                     |                   |                     |                   | MPR | Tune-up<br>Limit |
|             |        |                  |              | 39750<br>2506 MHz           | 40185<br>2549.5 MHz | 40620<br>2593 MHz | 41055<br>2636.5 MHz | 41490<br>2680 MHz |     |                  |
|             |        |                  |              | 39750<br>2506 MHz           | 40185<br>2549.5 MHz | 40620<br>2593 MHz | 41055<br>2636.5 MHz | 41490<br>2680 MHz |     |                  |
| 15 MHz      | QPSK   | 1                | 0            | 21.9                        | 21.6                | 21.3              | 21.6                | 21.5              | 0.0 | 23.5             |
|             |        | 1                | 37           | 21.5                        | 21.5                | 21.6              | 21.3                | 21.6              | 0.0 | 23.5             |
|             |        | 1                | 74           | 21.8                        | 21.5                | 21.1              | 21.5                | 21.3              | 0.0 | 23.5             |
|             |        | 36               | 0            | 20.8                        | 20.6                | 20.3              | 20.5                | 20.5              | 1.0 | 22.5             |
|             |        | 36               | 20           | 20.8                        | 20.5                | 20.3              | 20.5                | 20.5              | 1.0 | 22.5             |
|             |        | 36               | 39           | 20.8                        | 20.5                | 20.3              | 20.4                | 20.4              | 1.0 | 22.5             |
|             |        | 75               | 0            | 20.8                        | 20.6                | 20.3              | 20.5                | 20.5              | 1.0 | 22.5             |
|             | 16QAM  | 1                | 0            | 20.8                        | 20.7                | 20.5              | 20.4                | 20.4              | 1.0 | 22.5             |
|             |        | 1                | 37           | 20.3                        | 20.4                | 20.6              | 20.0                | 20.0              | 1.0 | 22.5             |
|             |        | 1                | 74           | 20.7                        | 20.6                | 20.5              | 20.3                | 20.6              | 1.0 | 22.5             |
|             |        | 36               | 0            | 19.8                        | 19.6                | 19.3              | 19.5                | 19.5              | 2.0 | 21.5             |
|             |        | 36               | 20           | 19.7                        | 19.5                | 19.2              | 19.5                | 19.4              | 2.0 | 21.5             |
|             |        | 36               | 39           | 19.7                        | 19.6                | 19.2              | 19.4                | 19.4              | 2.0 | 21.5             |
|             |        | 75               | 0            | 19.8                        | 19.6                | 19.2              | 19.5                | 19.5              | 2.0 | 21.5             |
|             | 64QAM  | 1                | 0            | 19.3                        | 19.9                | 19.1              | 19.5                | 19.7              | 2.0 | 21.5             |
|             |        | 1                | 37           | 19.2                        | 19.5                | 19.5              | 19.3                | 19.8              | 2.0 | 21.5             |
|             |        | 1                | 74           | 19.5                        | 19.9                | 19.7              | 19.3                | 19.8              | 2.0 | 21.5             |
|             |        | 36               | 0            | 18.8                        | 18.5                | 18.5              | 18.5                | 18.6              | 3.0 | 20.5             |
|             |        | 36               | 20           | 18.9                        | 18.5                | 18.2              | 18.3                | 18.5              | 3.0 | 20.5             |
|             |        | 36               | 39           | 18.8                        | 18.5                | 18.5              | 18.8                | 18.8              | 3.0 | 20.5             |
|             |        | 75               | 0            | 18.7                        | 18.5                | 18.1              | 18.5                | 18.7              | 3.0 | 20.5             |
|             | 256QAM | 1                | 0            | 16.5                        | 16.3                | 16.2              | 16.1                | 16.2              | 5.0 | 18.5             |
|             |        | 1                | 37           | 16.2                        | 16.1                | 16.3              | 16.6                | 16.3              | 5.0 | 18.5             |
|             |        | 1                | 74           | 16.3                        | 16.5                | 16.2              | 16.4                | 16.3              | 5.0 | 18.5             |
|             |        | 36               | 0            | 16.6                        | 16.4                | 16.1              | 16.4                | 16.3              | 5.0 | 18.5             |
|             |        | 36               | 20           | 16.6                        | 16.4                | 16.1              | 16.3                | 16.3              | 5.0 | 18.5             |
|             |        | 36               | 39           | 16.6                        | 16.4                | 16.1              | 16.3                | 16.3              | 5.0 | 18.5             |
|             |        | 75               | 0            | 16.6                        | 16.4                | 16.2              | 16.4                | 16.3              | 5.0 | 18.5             |

**LTE Band 41 – Power Class 3 - Measured Results (Continued)**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |            |          |            |          | MPR | Tune-up<br>Limit |
|-------------|--------|------------------|--------------|--------------------|------------|----------|------------|----------|-----|------------------|
|             |        |                  |              | 39750              | 40185      | 40620    | 41055      | 41490    |     |                  |
|             |        |                  |              | 2506 MHz           | 2549.5 MHz | 2593 MHz | 2636.5 MHz | 2680 MHz |     |                  |
| 10 MHz      | QPSK   | 1                | 0            | 21.8               | 21.6       | 21.3     | 21.5       | 21.5     | 0.0 | 23.5             |
|             |        | 1                | 25           | 21.6               | 21.6       | 21.3     | 21.3       | 21.5     | 0.0 | 23.5             |
|             |        | 1                | 49           | 21.8               | 21.6       | 21.2     | 21.4       | 21.5     | 0.0 | 23.5             |
|             |        | 25               | 0            | 20.8               | 20.6       | 20.3     | 20.5       | 20.5     | 1.0 | 22.5             |
|             |        | 25               | 12           | 20.8               | 20.5       | 20.3     | 20.5       | 20.4     | 1.0 | 22.5             |
|             |        | 25               | 25           | 20.8               | 20.6       | 20.2     | 20.5       | 20.4     | 1.0 | 22.5             |
|             | 16QAM  | 50               | 0            | 20.8               | 20.6       | 20.3     | 20.4       | 20.5     | 1.0 | 22.5             |
|             |        | 1                | 0            | 20.9               | 20.5       | 20.2     | 20.6       | 20.5     | 1.0 | 22.5             |
|             |        | 1                | 25           | 20.8               | 20.4       | 20.0     | 20.5       | 20.4     | 1.0 | 22.5             |
|             |        | 1                | 49           | 21.0               | 20.5       | 20.1     | 20.7       | 20.4     | 1.0 | 22.5             |
|             |        | 25               | 0            | 19.8               | 19.6       | 19.3     | 19.5       | 19.4     | 2.0 | 21.5             |
|             |        | 25               | 12           | 19.7               | 19.5       | 19.3     | 19.5       | 19.4     | 2.0 | 21.5             |
|             | 64QAM  | 25               | 25           | 19.8               | 19.6       | 19.2     | 19.5       | 19.4     | 2.0 | 21.5             |
|             |        | 50               | 0            | 19.8               | 19.6       | 19.3     | 19.5       | 19.4     | 2.0 | 21.5             |
|             |        | 1                | 0            | 19.7               | 19.5       | 19.2     | 19.5       | 19.4     | 2.0 | 21.5             |
|             |        | 1                | 25           | 19.6               | 19.4       | 19.2     | 19.5       | 19.4     | 2.0 | 21.5             |
|             |        | 1                | 49           | 19.7               | 19.5       | 19.2     | 19.5       | 19.5     | 2.0 | 21.5             |
|             |        | 25               | 0            | 18.7               | 18.6       | 18.3     | 18.6       | 18.6     | 3.0 | 20.5             |
|             | 256QAM | 25               | 12           | 18.7               | 18.6       | 18.3     | 18.7       | 18.6     | 3.0 | 20.5             |
|             |        | 25               | 25           | 18.7               | 18.6       | 18.3     | 18.6       | 18.5     | 3.0 | 20.5             |
|             |        | 50               | 0            | 18.7               | 18.6       | 18.3     | 18.6       | 18.6     | 3.0 | 20.5             |
|             |        | 1                | 0            | 16.5               | 16.3       | 16.2     | 16.3       | 16.5     | 5.0 | 18.5             |
|             |        | 1                | 25           | 16.4               | 16.1       | 16.3     | 16.2       | 16.5     | 5.0 | 18.5             |
|             |        | 1                | 49           | 16.5               | 16.2       | 16.3     | 16.2       | 16.5     | 5.0 | 18.5             |
| 5 MHz       | QPSK   | 25               | 0            | 16.5               | 16.4       | 16.1     | 16.3       | 16.3     | 5.0 | 18.5             |
|             |        | 25               | 12           | 16.6               | 16.3       | 16.0     | 16.4       | 16.3     | 5.0 | 18.5             |
|             |        | 25               | 25           | 16.5               | 16.3       | 16.0     | 16.3       | 16.3     | 5.0 | 18.5             |
|             |        | 50               | 0            | 16.5               | 16.3       | 16.1     | 16.3       | 16.3     | 5.0 | 18.5             |
|             |        | 1                | 0            | 21.9               | 21.6       | 21.3     | 21.6       | 21.5     | 0.0 | 23.5             |
|             |        | 1                | 12           | 21.6               | 21.7       | 21.6     | 21.2       | 21.0     | 0.0 | 23.5             |
|             | 16QAM  | 1                | 24           | 21.9               | 21.6       | 21.3     | 21.5       | 21.4     | 0.0 | 23.5             |
|             |        | 12               | 0            | 20.8               | 20.6       | 20.3     | 20.5       | 20.4     | 1.0 | 22.5             |
|             |        | 12               | 7            | 20.9               | 20.6       | 20.2     | 20.4       | 20.5     | 1.0 | 22.5             |
|             |        | 12               | 13           | 20.9               | 20.6       | 20.3     | 20.4       | 20.5     | 1.0 | 22.5             |
|             |        | 25               | 0            | 20.9               | 20.6       | 20.3     | 20.5       | 20.5     | 1.0 | 22.5             |
|             |        | 1                | 0            | 21.0               | 20.6       | 20.1     | 20.6       | 20.6     | 1.0 | 22.5             |
|             | 64QAM  | 1                | 12           | 20.5               | 20.6       | 20.4     | 20.1       | 20.2     | 1.0 | 22.5             |
|             |        | 1                | 24           | 21.0               | 20.5       | 20.1     | 20.6       | 20.6     | 1.0 | 22.5             |
|             |        | 12               | 0            | 19.8               | 19.6       | 19.2     | 19.5       | 19.5     | 2.0 | 21.5             |
|             |        | 12               | 7            | 19.8               | 19.7       | 19.2     | 19.4       | 19.5     | 2.0 | 21.5             |
|             |        | 12               | 13           | 19.8               | 19.7       | 19.2     | 19.4       | 19.5     | 2.0 | 21.5             |
|             |        | 25               | 0            | 19.8               | 19.6       | 19.3     | 19.5       | 19.5     | 2.0 | 21.5             |
|             | 256QAM | 1                | 0            | 19.7               | 19.5       | 19.2     | 19.4       | 19.5     | 2.0 | 21.5             |
|             |        | 1                | 12           | 19.7               | 19.5       | 19.1     | 19.4       | 19.1     | 2.0 | 21.5             |
|             |        | 1                | 24           | 19.7               | 19.5       | 19.1     | 19.4       | 19.4     | 2.0 | 21.5             |
|             |        | 12               | 0            | 18.8               | 18.6       | 18.3     | 18.5       | 18.5     | 3.0 | 20.5             |
|             |        | 12               | 7            | 18.8               | 18.6       | 18.3     | 18.5       | 18.4     | 3.0 | 20.5             |
|             |        | 12               | 13           | 18.8               | 18.6       | 18.2     | 18.5       | 18.4     | 3.0 | 20.5             |
| 5 MHz       | QPSK   | 25               | 0            | 18.8               | 18.7       | 18.3     | 18.5       | 18.3     | 3.0 | 20.5             |
|             |        | 1                | 0            | 16.6               | 16.5       | 16.2     | 16.4       | 16.6     | 5.0 | 18.5             |
|             |        | 1                | 12           | 16.6               | 16.1       | 16.0     | 16.7       | 16.3     | 5.0 | 18.5             |
|             |        | 1                | 24           | 16.7               | 16.5       | 16.1     | 16.4       | 16.5     | 5.0 | 18.5             |
|             |        | 12               | 0            | 16.5               | 16.3       | 16.1     | 16.3       | 16.3     | 5.0 | 18.5             |
|             |        | 12               | 7            | 16.4               | 16.3       | 16.1     | 16.2       | 16.3     | 5.0 | 18.5             |
|             | 16QAM  | 12               | 13           | 16.4               | 16.3       | 16.1     | 16.2       | 16.2     | 5.0 | 18.5             |
|             |        | 25               | 0            | 16.5               | 16.3       | 16.1     | 16.2       | 16.3     | 5.0 | 18.5             |
|             |        | 50               | 0            | 16.5               | 16.3       | 16.1     | 16.2       | 16.3     | 5.0 | 18.5             |
|             |        | 1                | 0            | 16.5               | 16.3       | 16.1     | 16.2       | 16.3     | 5.0 | 18.5             |
|             |        | 1                | 12           | 16.6               | 16.1       | 16.0     | 16.7       | 16.3     | 5.0 | 18.5             |
|             |        | 1                | 24           | 16.7               | 16.5       | 16.1     | 16.4       | 16.5     | 5.0 | 18.5             |

**LTE Band 41 – Power Class 2 - Measured Results**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Maximum Average Power (dBm) |            |          |            |          |     |                  |
|-------------|--------|------------------|--------------|-----------------------------|------------|----------|------------|----------|-----|------------------|
|             |        |                  |              | Measured Pwr (dBm)          |            |          |            |          | MPR | Tune-up<br>Limit |
|             |        |                  |              | 39750                       | 40185      | 40620    | 41055      | 41490    |     |                  |
|             |        |                  |              | 2506 MHz                    | 2549.5 MHz | 2593 MHz | 2636.5 MHz | 2680 MHz |     |                  |
| 20 MHz      | QPSK   | 1                | 0            | 24.9                        | 24.7       | 24.4     | 24.7       | 24.6     | 0.0 | 26.5             |
|             |        | 1                | 49           | 24.8                        | 24.6       | 24.2     | 24.5       | 24.5     | 0.0 | 26.5             |
|             |        | 1                | 99           | 25.0                        | 24.7       | 24.3     | 24.6       | 24.6     | 0.0 | 26.5             |
|             |        | 50               | 0            | 23.9                        | 23.7       | 23.4     | 23.7       | 23.6     | 1.0 | 25.5             |
|             |        | 50               | 24           | 23.8                        | 23.7       | 23.4     | 23.6       | 23.6     | 1.0 | 25.5             |
|             |        | 50               | 50           | 23.9                        | 23.6       | 23.3     | 23.6       | 23.5     | 1.0 | 25.5             |
|             | 16QAM  | 100              | 0            | 23.9                        | 23.7       | 23.4     | 23.6       | 23.6     | 1.0 | 25.5             |
|             |        | 1                | 0            | 24.2                        | 24.0       | 23.6     | 24.0       | 23.8     | 1.0 | 25.5             |
|             |        | 1                | 49           | 24.1                        | 23.9       | 23.5     | 23.9       | 23.6     | 1.0 | 25.5             |
|             |        | 1                | 99           | 24.2                        | 24.0       | 23.5     | 23.9       | 23.6     | 1.0 | 25.5             |
|             |        | 50               | 0            | 22.9                        | 22.7       | 22.4     | 22.7       | 22.5     | 2.0 | 24.5             |
|             |        | 50               | 24           | 22.9                        | 22.7       | 22.4     | 22.6       | 22.5     | 2.0 | 24.5             |
|             | 64QAM  | 50               | 50           | 22.9                        | 22.7       | 22.3     | 22.6       | 22.4     | 2.0 | 24.5             |
|             |        | 100              | 0            | 22.9                        | 22.7       | 22.3     | 22.6       | 22.5     | 2.0 | 24.5             |
|             |        | 1                | 0            | 23.1                        | 22.7       | 22.5     | 22.9       | 22.5     | 2.0 | 24.5             |
|             |        | 1                | 49           | 23.0                        | 22.7       | 22.5     | 22.9       | 22.5     | 2.0 | 24.5             |
|             |        | 1                | 99           | 23.2                        | 22.7       | 22.5     | 22.9       | 22.5     | 2.0 | 24.5             |
|             |        | 50               | 0            | 21.8                        | 21.7       | 21.4     | 21.9       | 21.5     | 3.0 | 23.5             |
|             | 256QAM | 50               | 24           | 21.8                        | 21.7       | 21.5     | 21.9       | 21.5     | 3.0 | 23.5             |
|             |        | 50               | 50           | 21.9                        | 21.8       | 21.5     | 21.9       | 21.5     | 3.0 | 23.5             |
|             |        | 100              | 0            | 21.7                        | 21.7       | 21.5     | 21.9       | 21.5     | 3.0 | 23.5             |
|             |        | 1                | 0            | 19.9                        | 19.6       | 19.7     | 19.6       | 19.6     | 5.0 | 21.5             |
|             |        | 1                | 49           | 19.9                        | 19.5       | 19.5     | 19.6       | 19.4     | 5.0 | 21.5             |
|             |        | 1                | 99           | 19.9                        | 19.6       | 19.6     | 19.5       | 19.4     | 5.0 | 21.5             |
|             |        | 50               | 0            | 19.7                        | 19.6       | 19.3     | 19.5       | 19.5     | 5.0 | 21.5             |
|             |        | 50               | 24           | 19.7                        | 19.6       | 19.3     | 19.5       | 19.5     | 5.0 | 21.5             |
|             |        | 50               | 50           | 19.7                        | 19.6       | 19.3     | 19.4       | 19.5     | 5.0 | 21.5             |
|             |        | 100              | 0            | 19.7                        | 19.6       | 19.3     | 19.5       | 19.5     | 5.0 | 21.5             |
| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm)          |            |          |            |          | MPR | Tune-up<br>Limit |
|             |        |                  |              | 39750                       | 40185      | 40620    | 41055      | 41490    |     |                  |
|             |        |                  |              | 2506 MHz                    | 2549.5 MHz | 2593 MHz | 2636.5 MHz | 2680 MHz |     |                  |
|             |        |                  |              |                             |            |          |            |          |     |                  |
| 15 MHz      | QPSK   | 1                | 0            | 24.9                        | 24.5       | 24.4     | 24.5       | 24.6     | 0.0 | 26.5             |
|             |        | 1                | 37           | 24.5                        | 24.1       | 24.4     | 24.1       | 24.1     | 0.0 | 26.5             |
|             |        | 1                | 74           | 24.9                        | 24.5       | 24.3     | 24.5       | 24.5     | 0.0 | 26.5             |
|             |        | 36               | 0            | 23.9                        | 23.6       | 23.4     | 23.6       | 23.6     | 1.0 | 25.5             |
|             |        | 36               | 20           | 23.9                        | 23.7       | 23.3     | 23.7       | 23.6     | 1.0 | 25.5             |
|             |        | 36               | 39           | 23.8                        | 23.6       | 23.4     | 23.6       | 23.6     | 1.0 | 25.5             |
|             |        | 75               | 0            | 23.9                        | 23.7       | 23.4     | 23.6       | 23.7     | 1.0 | 25.5             |
|             | 16QAM  | 1                | 0            | 24.1                        | 23.7       | 23.8     | 23.9       | 23.6     | 1.0 | 25.5             |
|             |        | 1                | 37           | 24.0                        | 23.4       | 24.0     | 23.7       | 23.3     | 1.0 | 25.5             |
|             |        | 1                | 74           | 24.1                        | 23.6       | 23.6     | 23.7       | 23.4     | 1.0 | 25.5             |
|             |        | 36               | 0            | 22.8                        | 22.7       | 22.4     | 22.6       | 22.6     | 2.0 | 24.5             |
|             |        | 36               | 20           | 22.9                        | 22.7       | 22.3     | 22.7       | 22.5     | 2.0 | 24.5             |
|             |        | 36               | 39           | 22.8                        | 22.7       | 22.3     | 22.6       | 22.5     | 2.0 | 24.5             |
|             |        | 75               | 0            | 22.9                        | 22.7       | 22.3     | 22.6       | 22.6     | 2.0 | 24.5             |
|             | 64QAM  | 1                | 0            | 23.0                        | 23.0       | 22.5     | 22.9       | 22.9     | 2.0 | 24.5             |
|             |        | 1                | 37           | 23.1                        | 23.0       | 22.5     | 22.9       | 22.9     | 2.0 | 24.5             |
|             |        | 1                | 74           | 23.0                        | 23.0       | 22.5     | 22.9       | 22.9     | 2.0 | 24.5             |
|             |        | 36               | 0            | 21.8                        | 21.6       | 21.4     | 21.6       | 21.6     | 3.0 | 23.5             |
|             |        | 36               | 20           | 21.8                        | 21.6       | 21.4     | 21.6       | 21.6     | 3.0 | 23.5             |
|             |        | 36               | 39           | 21.8                        | 21.6       | 21.4     | 21.6       | 21.6     | 3.0 | 23.5             |
|             |        | 75               | 0            | 21.7                        | 21.6       | 21.4     | 21.6       | 21.6     | 3.0 | 23.5             |
|             | 256QAM | 1                | 0            | 19.9                        | 19.8       | 19.6     | 19.9       | 19.9     | 5.0 | 21.5             |
|             |        | 1                | 37           | 19.9                        | 19.8       | 19.7     | 19.8       | 20.0     | 5.0 | 21.5             |
|             |        | 1                | 74           | 19.9                        | 19.8       | 19.6     | 19.8       | 19.8     | 5.0 | 21.5             |
|             |        | 36               | 0            | 19.7                        | 19.5       | 19.3     | 19.5       | 19.4     | 5.0 | 21.5             |
|             |        | 36               | 20           | 19.8                        | 19.5       | 19.2     | 19.5       | 19.4     | 5.0 | 21.5             |
|             |        | 36               | 39           | 19.7                        | 19.5       | 19.2     | 19.5       | 19.4     | 5.0 | 21.5             |
|             |        | 75               | 0            | 19.7                        | 19.5       | 19.2     | 19.5       | 19.5     | 5.0 | 21.5             |

**LTE Band 41 – Power Class 2 - Measured Results (Continued)**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset        | Measured Pw r (dBm) |            |          |            |          | MPR              | Tune-up<br>Limit |      |
|-------------|--------|------------------|---------------------|---------------------|------------|----------|------------|----------|------------------|------------------|------|
|             |        |                  |                     | 39750               | 40185      | 40620    | 41055      | 41490    |                  |                  |      |
|             |        |                  |                     | 2506 MHz            | 2549.5 MHz | 2593 MHz | 2636.5 MHz | 2680 MHz |                  |                  |      |
| 10 MHz      | QPSK   | 1                | 0                   | 24.7                | 24.5       | 24.3     | 24.5       | 24.5     | 0.0              | 26.5             |      |
|             |        | 1                | 25                  | 24.7                | 24.3       | 24.1     | 24.4       | 24.3     | 0.0              | 26.5             |      |
|             |        | 1                | 49                  | 24.8                | 24.5       | 24.2     | 24.4       | 24.5     | 0.0              | 26.5             |      |
|             |        | 25               | 0                   | 23.8                | 23.6       | 23.3     | 23.5       | 23.5     | 1.0              | 25.5             |      |
|             |        | 25               | 12                  | 23.8                | 23.5       | 23.3     | 23.5       | 23.5     | 1.0              | 25.5             |      |
|             |        | 25               | 25                  | 23.8                | 23.5       | 23.3     | 23.5       | 23.5     | 1.0              | 25.5             |      |
|             | 16QAM  | 50               | 0                   | 23.7                | 23.6       | 23.3     | 23.5       | 23.5     | 1.0              | 25.5             |      |
|             |        | 1                | 0                   | 23.8                | 23.7       | 23.7     | 23.8       | 23.7     | 1.0              | 25.5             |      |
|             |        | 1                | 25                  | 23.8                | 23.6       | 23.6     | 23.7       | 23.5     | 1.0              | 25.5             |      |
|             |        | 1                | 49                  | 23.9                | 23.7       | 23.7     | 23.8       | 23.6     | 1.0              | 25.5             |      |
|             |        | 25               | 0                   | 22.8                | 22.6       | 22.3     | 22.6       | 22.5     | 2.0              | 24.5             |      |
|             |        | 25               | 12                  | 22.8                | 22.6       | 22.3     | 22.5       | 22.5     | 2.0              | 24.5             |      |
|             | 64QAM  | 25               | 25                  | 22.8                | 22.6       | 22.3     | 22.5       | 22.5     | 2.0              | 24.5             |      |
|             |        | 50               | 0                   | 22.7                | 22.6       | 22.4     | 22.5       | 22.6     | 2.0              | 24.5             |      |
|             |        | 1                | 0                   | 23.1                | 22.6       | 22.5     | 22.8       | 22.5     | 2.0              | 24.5             |      |
|             |        | 1                | 25                  | 23.1                | 22.6       | 22.5     | 22.8       | 22.5     | 2.0              | 24.5             |      |
|             |        | 1                | 49                  | 23.1                | 22.6       | 22.5     | 22.8       | 22.5     | 2.0              | 24.5             |      |
|             |        | 25               | 0                   | 21.7                | 21.6       | 21.5     | 21.8       | 21.5     | 3.0              | 23.5             |      |
|             | 256QAM | 25               | 12                  | 21.7                | 21.6       | 21.5     | 21.8       | 21.5     | 3.0              | 23.5             |      |
|             |        | 25               | 25                  | 21.7                | 21.6       | 21.5     | 21.8       | 21.6     | 3.0              | 23.5             |      |
|             |        | 50               | 0                   | 21.7                | 21.6       | 21.5     | 21.8       | 21.5     | 3.0              | 23.5             |      |
|             |        | 1                | 0                   | 19.8                | 19.5       | 19.4     | 19.6       | 19.6     | 5.0              | 21.5             |      |
|             |        | 1                | 25                  | 19.8                | 19.4       | 19.2     | 19.5       | 19.4     | 5.0              | 21.5             |      |
|             |        | 1                | 49                  | 19.9                | 19.5       | 19.4     | 19.6       | 19.5     | 5.0              | 21.5             |      |
| 5 MHz       | QPSK   | 25               | 0                   | 19.7                | 19.5       | 19.2     | 19.5       | 19.5     | 5.0              | 21.5             |      |
|             |        | 25               | 12                  | 19.7                | 19.5       | 19.2     | 19.4       | 19.4     | 5.0              | 21.5             |      |
|             |        | 25               | 25                  | 19.7                | 19.5       | 19.2     | 19.4       | 19.4     | 5.0              | 21.5             |      |
|             |        | 50               | 0                   | 19.6                | 19.5       | 19.3     | 19.4       | 19.4     | 5.0              | 21.5             |      |
|             |        | 16QAM            | Measured Pw r (dBm) |                     |            |          |            | MPR      | Tune-up<br>Limit |                  |      |
|             |        |                  |                     |                     |            |          |            |          |                  |                  |      |
|             | 1      |                  | 0                   | 24.7                | 24.6       | 24.2     | 24.6       | 24.4     | 0.0              | 26.5             |      |
|             | 1      |                  | 12                  | 24.8                | 24.7       | 24.4     | 24.5       | 24.6     | 0.0              | 26.5             |      |
|             | 1      |                  | 24                  | 24.7                | 24.5       | 24.2     | 24.5       | 24.4     | 0.0              | 26.5             |      |
|             | 12     |                  | 0                   | 23.8                | 23.6       | 23.2     | 23.5       | 23.4     | 1.0              | 25.5             |      |
|             | 64QAM  | 12               | 7                   | 23.8                | 23.5       | 23.3     | 23.4       | 23.4     | 1.0              | 25.5             |      |
|             |        | 12               | 13                  | 23.8                | 23.5       | 23.3     | 23.5       | 23.4     | 1.0              | 25.5             |      |
|             |        | 25               | 0                   | 23.7                | 23.5       | 23.3     | 23.4       | 23.4     | 1.0              | 25.5             |      |
|             |        | 1                | 0                   | 24.3                | 23.9       | 23.3     | 23.8       | 23.7     | 1.0              | 25.5             |      |
|             |        | 1                | 12                  | 24.3                | 23.8       | 23.2     | 23.8       | 23.6     | 1.0              | 25.5             |      |
|             |        | 1                | 24                  | 24.2                | 23.9       | 23.2     | 23.7       | 23.7     | 1.0              | 25.5             |      |
|             | 256QAM | 12               | 0                   | 22.8                | 22.5       | 22.3     | 22.4       | 22.5     | 2.0              | 24.5             |      |
|             |        | 12               | 7                   | 22.8                | 22.5       | 22.3     | 22.4       | 22.4     | 2.0              | 24.5             |      |
|             |        | 12               | 13                  | 22.8                | 22.5       | 22.3     | 22.4       | 22.5     | 2.0              | 24.5             |      |
|             |        | 25               | 0                   | 22.8                | 22.5       | 22.3     | 22.4       | 22.4     | 2.0              | 24.5             |      |
|             |        | 1                | 0                   | 22.7                | 22.8       | 22.7     | 22.4       | 22.6     | 2.0              | 24.5             |      |
|             |        | 1                | 12                  | 22.9                | 22.8       | 22.7     | 22.5       | 22.3     | 2.0              | 24.5             |      |
|             | 10 MHz | QPSK             | 1                   | 24                  | 22.6       | 22.8     | 22.7       | 22.4     | 22.5             | 2.0              | 24.5 |
|             |        |                  | 12                  | 0                   | 21.8       | 21.7     | 21.6       | 21.3     | 21.4             | 3.0              | 23.5 |
| 12          |        |                  | 7                   | 21.7                | 21.7       | 21.6     | 21.4       | 21.3     | 3.0              | 23.5             |      |
| 12          |        |                  | 13                  | 21.8                | 21.7       | 21.6     | 21.4       | 21.3     | 3.0              | 23.5             |      |
| 25          |        |                  | 0                   | 21.6                | 21.7       | 21.6     | 21.4       | 21.4     | 3.0              | 23.5             |      |
| 1           |        |                  | 0                   | 19.8                | 19.3       | 19.4     | 19.3       | 19.4     | 5.0              | 21.5             |      |
| 16QAM       |        | 1                | 12                  | 19.8                | 19.5       | 19.6     | 19.3       | 19.7     | 5.0              | 21.5             |      |
|             |        | 1                | 24                  | 19.9                | 19.2       | 19.4     | 19.3       | 19.4     | 5.0              | 21.5             |      |
|             |        | 12               | 0                   | 19.7                | 19.5       | 19.3     | 19.4       | 19.4     | 5.0              | 21.5             |      |
|             |        | 12               | 7                   | 19.7                | 19.5       | 19.3     | 19.3       | 19.4     | 5.0              | 21.5             |      |
| 256QAM      | 12     | 13               | 19.7                | 19.6                | 19.3       | 19.3     | 19.5       | 5.0      | 21.5             |                  |      |
|             | 25     | 0                | 19.7                | 19.4                | 19.2       | 19.3     | 19.3       | 5.0      | 21.5             |                  |      |

## 2. Reduced power Results

### LTE Band 41 – Power Class 2 - Measured Results

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Reduced Average Power (dBm)<br>Hotspot back-off |            |          |            |          |     |                  |
|-------------|--------|------------------|--------------|-------------------------------------------------|------------|----------|------------|----------|-----|------------------|
|             |        |                  |              | Measured Pwr (dBm)                              |            |          |            |          | MPR | Tune-up<br>Limit |
|             |        |                  |              | 39750                                           | 40185      | 40620    | 41055      | 41490    |     |                  |
|             |        |                  |              | 2506 MHz                                        | 2549.5 MHz | 2593 MHz | 2636.5 MHz | 2680 MHz |     |                  |
| 20 MHz      | QPSK   | 1                | 0            | 21.7                                            | 21.6       | 21.3     | 21.6       | 21.6     | 0.0 | 23.5             |
|             |        | 1                | 49           | 21.7                                            | 21.4       | 21.0     | 21.5       | 21.4     | 0.0 | 23.5             |
|             |        | 1                | 99           | 21.8                                            | 21.6       | 21.2     | 21.5       | 21.5     | 0.0 | 23.5             |
|             |        | 50               | 0            | 20.7                                            | 20.6       | 20.3     | 20.5       | 20.5     | 1.0 | 22.5             |
|             |        | 50               | 24           | 20.8                                            | 20.6       | 20.3     | 20.5       | 20.5     | 1.0 | 22.5             |
|             |        | 50               | 50           | 20.9                                            | 20.5       | 20.3     | 20.5       | 20.4     | 1.0 | 22.5             |
|             |        | 100              | 0            | 20.8                                            | 20.5       | 20.3     | 20.5       | 20.5     | 1.0 | 22.5             |
|             | 16QAM  | 1                | 0            | 21.3                                            | 21.0       | 20.8     | 20.8       | 20.8     | 1.0 | 22.5             |
|             |        | 1                | 49           | 21.3                                            | 20.9       | 20.6     | 20.7       | 20.6     | 1.0 | 22.5             |
|             |        | 1                | 99           | 21.1                                            | 21.0       | 20.7     | 20.8       | 20.7     | 1.0 | 22.5             |
|             |        | 50               | 0            | 19.7                                            | 19.6       | 19.3     | 19.6       | 19.5     | 2.0 | 21.5             |
|             |        | 50               | 24           | 19.7                                            | 19.6       | 19.3     | 19.5       | 19.5     | 2.0 | 21.5             |
|             |        | 50               | 50           | 19.8                                            | 19.5       | 19.3     | 19.6       | 19.4     | 2.0 | 21.5             |
|             |        | 100              | 0            | 19.8                                            | 19.6       | 19.3     | 19.5       | 19.4     | 2.0 | 21.5             |
|             | 64QAM  | 1                | 0            | 20.2                                            | 19.9       | 19.2     | 19.7       | 19.7     | 2.0 | 21.5             |
|             |        | 1                | 49           | 20.1                                            | 19.9       | 19.2     | 19.7       | 19.7     | 2.0 | 21.5             |
|             |        | 1                | 99           | 20.2                                            | 19.9       | 19.3     | 19.7       | 19.7     | 2.0 | 21.5             |
|             |        | 50               | 0            | 18.8                                            | 18.9       | 18.2     | 18.7       | 18.7     | 3.0 | 20.5             |
|             |        | 50               | 24           | 18.8                                            | 18.9       | 18.2     | 18.7       | 18.7     | 3.0 | 20.5             |
|             |        | 50               | 50           | 18.8                                            | 18.9       | 18.2     | 18.7       | 18.7     | 3.0 | 20.5             |
|             |        | 100              | 0            | 18.8                                            | 18.9       | 18.2     | 18.7       | 18.7     | 3.0 | 20.5             |
|             | 256QAM | 1                | 0            | 17.0                                            | 16.9       | 16.1     | 17.0       | 16.9     | 5.0 | 18.5             |
|             |        | 1                | 49           | 16.8                                            | 16.8       | 16.4     | 16.8       | 16.8     | 5.0 | 18.5             |
|             |        | 1                | 99           | 17.0                                            | 16.8       | 16.5     | 16.9       | 16.8     | 5.0 | 18.5             |
|             |        | 50               | 0            | 16.7                                            | 16.4       | 16.2     | 16.5       | 16.4     | 5.0 | 18.5             |
|             |        | 50               | 24           | 16.6                                            | 16.5       | 16.2     | 16.4       | 16.4     | 5.0 | 18.5             |
|             |        | 50               | 50           | 16.7                                            | 16.4       | 16.2     | 16.4       | 16.4     | 5.0 | 18.5             |
|             |        | 100              | 0            | 16.7                                            | 16.4       | 16.2     | 16.4       | 16.4     | 5.0 | 18.5             |
| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm)                              |            |          |            |          | MPR | Tune-up<br>Limit |
|             |        |                  |              | 39750                                           | 40185      | 40620    | 41055      | 41490    |     |                  |
|             |        |                  |              | 2506 MHz                                        | 2549.5 MHz | 2593 MHz | 2636.5 MHz | 2680 MHz |     |                  |
|             |        |                  |              |                                                 |            |          |            |          |     |                  |
| 15 MHz      | QPSK   | 1                | 0            | 21.8                                            | 21.6       | 21.3     | 21.6       | 21.5     | 0.0 | 23.5             |
|             |        | 1                | 37           | 21.4                                            | 21.1       | 21.3     | 21.1       | 21.5     | 0.0 | 23.5             |
|             |        | 1                | 74           | 21.8                                            | 21.5       | 21.3     | 21.5       | 21.4     | 0.0 | 23.5             |
|             |        | 36               | 0            | 20.8                                            | 20.5       | 20.3     | 20.5       | 20.5     | 1.0 | 22.5             |
|             |        | 36               | 20           | 20.8                                            | 20.5       | 20.2     | 20.5       | 20.5     | 1.0 | 22.5             |
|             |        | 36               | 39           | 20.8                                            | 20.5       | 20.3     | 20.5       | 20.5     | 1.0 | 22.5             |
|             |        | 75               | 0            | 20.8                                            | 20.6       | 20.3     | 20.5       | 20.5     | 1.0 | 22.5             |
|             | 16QAM  | 1                | 0            | 21.2                                            | 20.8       | 20.4     | 20.9       | 21.0     | 1.0 | 22.5             |
|             |        | 1                | 37           | 20.8                                            | 20.6       | 20.4     | 20.3       | 20.9     | 1.0 | 22.5             |
|             |        | 1                | 74           | 21.1                                            | 20.7       | 20.3     | 20.7       | 20.9     | 1.0 | 22.5             |
|             |        | 36               | 0            | 19.8                                            | 19.5       | 19.3     | 19.5       | 19.5     | 2.0 | 21.5             |
|             |        | 36               | 20           | 19.8                                            | 19.5       | 19.2     | 19.5       | 19.4     | 2.0 | 21.5             |
|             |        | 36               | 39           | 19.8                                            | 19.5       | 19.3     | 19.5       | 19.4     | 2.0 | 21.5             |
|             |        | 75               | 0            | 19.8                                            | 19.5       | 19.3     | 19.4       | 19.5     | 2.0 | 21.5             |
|             | 64QAM  | 1                | 0            | 19.5                                            | 20.0       | 19.5     | 19.7       | 20.0     | 2.0 | 21.5             |
|             |        | 1                | 37           | 19.5                                            | 20.0       | 19.5     | 19.7       | 20.0     | 2.0 | 21.5             |
|             |        | 1                | 74           | 19.5                                            | 20.0       | 19.5     | 19.7       | 20.0     | 2.0 | 21.5             |
|             |        | 36               | 0            | 18.8                                            | 18.7       | 18.2     | 18.4       | 18.7     | 3.0 | 20.5             |
|             |        | 36               | 20           | 18.9                                            | 18.7       | 18.2     | 18.4       | 18.8     | 3.0 | 20.5             |
|             |        | 36               | 39           | 18.8                                            | 18.7       | 18.2     | 18.4       | 18.8     | 3.0 | 20.5             |
|             |        | 75               | 0            | 18.8                                            | 18.7       | 18.2     | 18.4       | 18.7     | 3.0 | 20.5             |
|             | 256QAM | 1                | 0            | 16.7                                            | 16.3       | 16.6     | 16.7       | 16.3     | 5.0 | 18.5             |
|             |        | 1                | 37           | 16.9                                            | 16.4       | 16.8     | 16.6       | 16.3     | 5.0 | 18.5             |
|             |        | 1                | 74           | 16.7                                            | 16.2       | 16.5     | 16.6       | 16.1     | 5.0 | 18.5             |
|             |        | 36               | 0            | 16.7                                            | 16.5       | 16.2     | 16.5       | 16.4     | 5.0 | 18.5             |
|             |        | 36               | 20           | 16.7                                            | 16.5       | 16.1     | 16.5       | 16.3     | 5.0 | 18.5             |
|             |        | 36               | 39           | 16.6                                            | 16.5       | 16.2     | 16.4       | 16.3     | 5.0 | 18.5             |
|             |        | 75               | 0            | 16.7                                            | 16.5       | 16.2     | 16.5       | 16.4     | 5.0 | 18.5             |

**LTE Band 41 – Power Class 2 - Measured Results (Continued)**

| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |            |          |            |          | MPR | Tune-up<br>Limit |
|-------------|--------|------------------|--------------|--------------------|------------|----------|------------|----------|-----|------------------|
|             |        |                  |              | 39750              | 40185      | 40620    | 41055      | 41490    |     |                  |
|             |        |                  |              | 2506 MHz           | 2549.5 MHz | 2593 MHz | 2636.5 MHz | 2680 MHz |     |                  |
| 10 MHz      | QPSK   | 1                | 0            | 21.8               | 21.6       | 21.4     | 21.6       | 21.5     | 0.0 | 23.5             |
|             |        | 1                | 25           | 21.6               | 21.4       | 21.2     | 21.4       | 21.3     | 0.0 | 23.5             |
|             |        | 1                | 49           | 21.7               | 21.6       | 21.3     | 21.5       | 21.4     | 0.0 | 23.5             |
|             |        | 25               | 0            | 20.8               | 20.5       | 20.3     | 20.5       | 20.5     | 1.0 | 22.5             |
|             |        | 25               | 12           | 20.8               | 20.6       | 20.3     | 20.5       | 20.4     | 1.0 | 22.5             |
|             |        | 25               | 25           | 20.8               | 20.5       | 20.3     | 20.5       | 20.4     | 1.0 | 22.5             |
|             |        | 50               | 0            | 20.7               | 20.6       | 20.3     | 20.4       | 20.5     | 1.0 | 22.5             |
|             | 16QAM  | 1                | 0            | 21.0               | 20.9       | 20.7     | 21.1       | 20.8     | 1.0 | 22.5             |
|             |        | 1                | 25           | 21.0               | 20.8       | 20.6     | 21.1       | 20.7     | 1.0 | 22.5             |
|             |        | 1                | 49           | 21.0               | 21.0       | 20.7     | 21.1       | 20.9     | 1.0 | 22.5             |
|             |        | 25               | 0            | 19.8               | 19.6       | 19.2     | 19.5       | 19.5     | 2.0 | 21.5             |
|             |        | 25               | 12           | 19.8               | 19.6       | 19.2     | 19.5       | 19.4     | 2.0 | 21.5             |
|             |        | 25               | 25           | 19.8               | 19.6       | 19.2     | 19.5       | 19.4     | 2.0 | 21.5             |
|             |        | 50               | 0            | 19.8               | 19.6       | 19.3     | 19.5       | 19.5     | 2.0 | 21.5             |
|             | 64QAM  | 1                | 0            | 20.0               | 19.7       | 19.5     | 19.6       | 19.5     | 2.0 | 21.5             |
|             |        | 1                | 25           | 19.9               | 19.6       | 19.6     | 19.6       | 19.5     | 2.0 | 21.5             |
|             |        | 1                | 49           | 20.0               | 19.6       | 19.6     | 19.6       | 19.5     | 2.0 | 21.5             |
|             |        | 25               | 0            | 18.7               | 18.4       | 18.3     | 18.3       | 18.2     | 3.0 | 20.5             |
|             |        | 25               | 12           | 18.7               | 18.4       | 18.3     | 18.3       | 18.2     | 3.0 | 20.5             |
|             |        | 25               | 25           | 18.7               | 18.4       | 18.2     | 18.3       | 18.2     | 3.0 | 20.5             |
|             |        | 50               | 0            | 18.8               | 18.3       | 18.3     | 18.3       | 18.2     | 3.0 | 20.5             |
|             | 256QAM | 1                | 0            | 16.8               | 16.6       | 16.4     | 16.7       | 16.4     | 5.0 | 18.5             |
|             |        | 1                | 25           | 16.7               | 16.4       | 16.4     | 16.6       | 16.2     | 5.0 | 18.5             |
|             |        | 1                | 49           | 16.8               | 16.5       | 16.4     | 16.6       | 16.3     | 5.0 | 18.5             |
|             |        | 25               | 0            | 16.6               | 16.4       | 16.2     | 16.4       | 16.4     | 5.0 | 18.5             |
|             |        | 25               | 12           | 16.6               | 16.4       | 16.2     | 16.4       | 16.4     | 5.0 | 18.5             |
|             |        | 25               | 25           | 16.7               | 16.4       | 16.2     | 16.4       | 16.3     | 5.0 | 18.5             |
|             |        | 50               | 0            | 16.6               | 16.4       | 16.2     | 16.4       | 16.4     | 5.0 | 18.5             |
| BW<br>(MHz) | Mode   | RB<br>Allocation | RB<br>offset | Measured Pwr (dBm) |            |          |            |          | MPR | Tune-up<br>Limit |
|             |        |                  |              | 39750              | 40185      | 40620    | 41055      | 41490    |     |                  |
|             |        |                  |              | 2506 MHz           | 2549.5 MHz | 2593 MHz | 2636.5 MHz | 2680 MHz |     |                  |
| 5 MHz       | QPSK   | 1                | 0            | 21.8               | 21.7       | 21.3     | 21.5       | 21.6     | 0.0 | 23.5             |
|             |        | 1                | 12           | 21.9               | 21.5       | 21.6     | 21.5       | 21.4     | 0.0 | 23.5             |
|             |        | 1                | 24           | 21.8               | 21.6       | 21.2     | 21.5       | 21.5     | 0.0 | 23.5             |
|             |        | 12               | 0            | 20.8               | 20.5       | 20.2     | 20.4       | 20.4     | 1.0 | 22.5             |
|             |        | 12               | 7            | 20.7               | 20.5       | 20.3     | 20.4       | 20.4     | 1.0 | 22.5             |
|             |        | 12               | 13           | 20.8               | 20.5       | 20.2     | 20.5       | 20.5     | 1.0 | 22.5             |
|             |        | 25               | 0            | 20.8               | 20.5       | 20.3     | 20.4       | 20.4     | 1.0 | 22.5             |
|             | 16QAM  | 1                | 0            | 21.0               | 21.2       | 20.6     | 20.7       | 20.9     | 1.0 | 22.5             |
|             |        | 1                | 12           | 21.0               | 21.4       | 20.9     | 20.5       | 21.1     | 1.0 | 22.5             |
|             |        | 1                | 24           | 21.0               | 21.1       | 20.7     | 20.7       | 20.7     | 1.0 | 22.5             |
|             |        | 12               | 0            | 19.8               | 19.6       | 19.3     | 19.5       | 19.5     | 2.0 | 21.5             |
|             |        | 12               | 7            | 19.7               | 19.6       | 19.3     | 19.4       | 19.4     | 2.0 | 21.5             |
|             |        | 12               | 13           | 19.7               | 19.6       | 19.2     | 19.5       | 19.5     | 2.0 | 21.5             |
|             |        | 25               | 0            | 19.7               | 19.5       | 19.3     | 19.4       | 19.4     | 2.0 | 21.5             |
|             | 64QAM  | 1                | 0            | 20.0               | 19.8       | 19.7     | 19.8       | 19.5     | 2.0 | 21.5             |
|             |        | 1                | 12           | 20.1               | 19.9       | 19.7     | 19.8       | 19.5     | 2.0 | 21.5             |
|             |        | 1                | 24           | 19.9               | 19.9       | 19.7     | 19.8       | 19.5     | 2.0 | 21.5             |
|             |        | 12               | 0            | 18.8               | 18.6       | 18.4     | 18.5       | 18.5     | 3.0 | 20.5             |
|             |        | 12               | 7            | 18.7               | 18.6       | 18.4     | 18.5       | 18.5     | 3.0 | 20.5             |
|             |        | 12               | 13           | 18.7               | 18.6       | 18.4     | 18.5       | 18.5     | 3.0 | 20.5             |
|             |        | 25               | 0            | 18.6               | 18.6       | 18.4     | 18.5       | 18.5     | 3.0 | 20.5             |
|             | 256QAM | 1                | 0            | 16.8               | 16.6       | 16.4     | 16.6       | 16.9     | 5.0 | 18.5             |
|             |        | 1                | 12           | 16.6               | 16.8       | 16.6     | 16.5       | 17.2     | 5.0 | 18.5             |
|             |        | 1                | 24           | 16.8               | 16.6       | 16.4     | 16.6       | 16.9     | 5.0 | 18.5             |
|             |        | 12               | 0            | 16.6               | 16.5       | 16.1     | 16.4       | 16.5     | 5.0 | 18.5             |
|             |        | 12               | 7            | 16.5               | 16.4       | 16.1     | 16.3       | 16.4     | 5.0 | 18.5             |
|             |        | 12               | 13           | 16.5               | 16.5       | 16.1     | 16.4       | 16.5     | 5.0 | 18.5             |
|             |        | 25               | 0            | 16.5               | 16.3       | 16.1     | 16.3       | 16.3     | 5.0 | 18.5             |

### 9.3.1 LTE Rel. 10 Carrier Aggregation

#### LTE Carrier Aggregation Down Link Combinations:

The DL CA power measurement conditions for various CC's combinations were determined according to LTE DL CA SAR Test Exclusion guidance in TCB workshop note (April 2018). Only yellow highlighted cells need power measurement. The following power measurements were performed with a single carrier uplink; CA for this particular project only supports one (1) uplink and up to four (4) downlinks.

#### LTE Release 10 Carrier Aggregation

| Index   | 2CC     | Restriction | Completely Covered by | Reverse |
|---------|---------|-------------|-----------------------|---------|
| 2CC #1  | 2A-2A   |             |                       |         |
| 2CC #2  | 2C      |             |                       |         |
| 2CC #3  | 2A-4A   |             | 3CC #1                |         |
| 2CC #4  | 2A-5A   |             | 3CC #1                |         |
| 2CC #5  | 2A-12A  |             |                       |         |
| 2CC #6  | 2A-13A  |             | 3CC #2                |         |
| 2CC #7  | 2A-17A  |             |                       |         |
| 2CC #8  | 2A-66A  |             |                       |         |
| 2CC #9  | 4A-4A   |             | 3CC #3                |         |
| 2CC #10 | 4A-5A   |             | 3CC #1                |         |
| 2CC #11 | 4A-12A  |             | 3CC #3                |         |
| 2CC #12 | 4A-13A  |             | 3CC #2                |         |
| 2CC #13 | 4A-17A  |             | 3CC #4                | X       |
| 2CC #14 | 5A-41A  |             |                       | X       |
| 2CC #15 | 5A-66A  |             | 3CC #5                |         |
| 2CC #16 | 12A-66A |             | 3CC #6                |         |
| 2CC #17 | 26A-41A |             |                       | X       |
| 2CC #18 | 41A-41A |             |                       |         |
| 2CC #19 | 41C     |             | 3CC #8                |         |
| 2CC #20 | 66A-66A |             | 3CC #5                |         |
| 2CC #21 | 66B     |             |                       |         |
| 2CC #22 | 66C     |             |                       |         |

| Index   | 3CC         | Restriction | Completely Covered by | Reverse |
|---------|-------------|-------------|-----------------------|---------|
| 3CC #1  | 2A-4A-5A    |             |                       |         |
| 3CC #2  | 2A-4A-13A   |             |                       |         |
| 3CC #3  | 4A-4A-12A   | 4A-12A-4A   |                       |         |
| 3CC #4  | 4A-4A-17A   | 4A-17A-4A   |                       | X       |
| 3CC #5  | 5A-66A-66A  | 66A-5A-66A  |                       |         |
| 3CC #6  | 12A-66A-66A | 66A-12A-66A |                       |         |
| 3CC #7  | 26A-41C     |             |                       | X       |
| 3CC #8  | 41A-41C     |             |                       |         |
| 3CC #9  | 41C-41A     |             |                       |         |
| 3CC #10 | 41D         |             | 4CC #2                |         |

| Index  | 4CC     | Restriction | Completely Covered by | Reverse |
|--------|---------|-------------|-----------------------|---------|
| 4CC #1 | 41C-41C |             |                       |         |
| 4CC #2 | 41A-41D |             |                       | X       |

#### Note(s):

- Only yellow highlight cells need power measurement according to LTE DL CA SAR test Exclusion in TCB workshop (April.2018).

**LTE Release 10 Carrier Aggregation with 4x4 MIMO**

| Index   | 2CC         | Restriction | Completely Covered by | Reverse |
|---------|-------------|-------------|-----------------------|---------|
| 2CC #1  | 2A-[4A]     |             | 3CC #1                |         |
| 2CC #2  | 2A-[66A]    |             |                       |         |
| 2CC #3  | [4A]-[4A]   |             |                       |         |
| 2CC #4  | [4A]-5A     |             | 3CC #1                |         |
| 2CC #5  | [4A]-12A    |             |                       |         |
| 2CC #6  | [4A]-13A    |             | 3CC #2                |         |
| 2CC #7  | [4A]-17A    |             |                       | X       |
| 2CC #8  | 5A-[66A]    |             | 3CC #3                |         |
| 2CC #9  | 12A-[66A]   |             | 3CC #4                |         |
| 2CC #10 | [66A]-[66A] |             | 3CC #4                |         |

| Index  | 3CC             | Restriction     | Completely Covered by | Reverse |
|--------|-----------------|-----------------|-----------------------|---------|
| 3CC #1 | 2A-[4A]-5A      |                 |                       |         |
| 3CC #2 | 2A-[4A]-13A     |                 |                       |         |
| 3CC #3 | 5A-[66A]-[66A]  | [66A]-5A-[66A]  |                       |         |
| 3CC #4 | 12A-[66A]-[66A] | [66A]-12A-[66A] |                       |         |

[\*] is 4X4 MIMO configuration.

**Note(s):**

- Only yellow highlight cells need power measurement according to LTE DL CA SAR test Exclusion in TCB workshop (April.2018).

**1. Single Carrier 4x4 Downlink MIMO**

| LTE Band    | Bandwidth (MHz) | Channel | Frequency (MHz) | Modulation | RB/Offset | LTE Rel 8 Tx. Power [dBm] | 4x4 DL MIMO LTE Rel 8 Tx. Power [dBm] | Delta |
|-------------|-----------------|---------|-----------------|------------|-----------|---------------------------|---------------------------------------|-------|
| LTE Band 4  | 20              | 20175   | 1732.5          | QPSK       | 1/0       | 23.5                      | 23.5                                  | -0.1  |
| LTE Band 66 | 20              | 132572  | 1770            | QPSK       | 1/0       | 22.8                      | 22.7                                  | -0.1  |

**Note(s):**

- According to LTE Test Conditions in TCB workshop (May, 2017), SAR is excluded for LTE downlink 4x4 MIMO operation when uplink output with DL MIMO does not exceed highest uplink output power configuration without DL MIMO by more than a 1/4 dB. And for DL MIMO with carrier aggregation, the same SAR test exclusion procedure is considered.

**2. DL CA output power results**

| E-UTRA CA<br>configuration<br>(BCS) | Bands |      |      |      | UL   |             |         |                |               | DL          |         |                |             |         |                |             |         |                |             |         |                | LTE Rel 8<br>Tx. Power<br>[dBm] | LTE Rel 10<br>Tx. Power<br>[dBm] | Delta |
|-------------------------------------|-------|------|------|------|------|-------------|---------|----------------|---------------|-------------|---------|----------------|-------------|---------|----------------|-------------|---------|----------------|-------------|---------|----------------|---------------------------------|----------------------------------|-------|
|                                     | PCC   | SCC1 | SCC2 | SCC3 | PCC  |             |         |                |               | PCC         |         |                | SCC1        |         |                | SCC2        |         |                | SCC3        |         |                |                                 |                                  |       |
|                                     | 1st   | 2nd  | 3rd  | 4th  | Mode | BW<br>(MHz) | Channel | Freq.<br>(MHz) | RB/Offs<br>et | BW<br>(MHz) | Channel | Freq.<br>(MHz) | BW<br>(MHz) | Channel | Freq.<br>(MHz) | BW<br>(MHz) | Channel | Freq.<br>(MHz) | BW<br>(MHz) | Channel | Freq.<br>(MHz) |                                 |                                  |       |
| 2A-12A                              | 2A    | 12A  |      |      | QPSK | 20          | 19100   | 1900           | 1/0           | 20          | 1100    | 1980           | 10          | 5095    | 737.5          |             |         |                |             |         |                | 23.5                            | 23.5                             | -0.1  |
|                                     | 12A   | 2A   |      |      | QPSK | 10          | 23095   | 707.5          | 1/0           | 10          | 5095    | 737.5          | 20          | 900     | 1960           |             |         |                |             |         |                | 24.4                            | 24.5                             | 0.0   |
| 2A-17A                              | 2A    | 17A  |      |      | QPSK | 10          | 19100   | 1900           | 1/0           | 20          | 1100    | 1980           | 10          | 5790    | 740            |             |         |                |             |         |                | 23.5                            | 23.5                             | 0.0   |
|                                     | 17A   | 2A   |      |      | QPSK | 10          | 23790   | 710            | 1/0           | 10          | 5790    | 740            | 20          | 900     | 1960           |             |         |                |             |         |                | 24.4                            | 24.4                             | 0.0   |
| 2A-66A                              | 2A    | 66A  |      |      | QPSK | 20          | 19100   | 1900           | 1/0           | 20          | 1100    | 1980           | 20          | 66786   | 2145           |             |         |                |             |         |                | 23.5                            | 23.5                             | -0.1  |
|                                     | 66A   | 2A   |      |      | QPSK | 20          | 132322  | 1745           | 1/0           | 20          | 66786   | 2145           | 20          | 900     | 1960           |             |         |                |             |         |                | 23.1                            | 23.0                             | 0.0   |
| 5A-41A                              | 5A    | 41A  |      |      | QPSK | 10          | 20525   | 836.5          | 1/0           | 10          | 2525    | 881.5          | 20          | 40620   | 2593           |             |         |                |             |         |                | 23.9                            | 23.8                             | -0.1  |
| 26A-41A                             | 26A   | 41A  |      |      | QPSK | 15          | 26865   | 831.5          | 1/0           | 15          | 8865    | 876.5          | 20          | 40620   | 2593           |             |         |                |             |         |                | 23.8                            | 23.8                             | 0.0   |
| 2A-4A-5A                            | 2A    | 4A   | 5A   |      | QPSK | 20          | 19100   | 1900           | 1/0           | 20          | 1100    | 1980           | 20          | 2175    | 2132.5         | 10          | 2525    | 881.5          | 20          | 2525    | 881.5          | 23.5                            | 23.4                             | -0.1  |
|                                     | 4A    | 5A   | 2A   |      | QPSK | 20          | 20175   | 1732.5         | 1/0           | 20          | 2175    | 2132.5         | 10          | 2525    | 881.5          | 20          | 900     | 1960           | 20          | 900     | 1960           | 23.1                            | 23.1                             | 0.0   |
|                                     | 5A    | 2A   | 4A   |      | QPSK | 10          | 20525   | 836.5          | 1/0           | 10          | 2525    | 881.5          | 20          | 900     | 1960           | 20          | 2175    | 2132.5         | 20          | 2175    | 2132.5         | 23.9                            | 24.0                             | 0.1   |
| 2A-4A-13A                           | 2A    | 4A   | 13A  |      | QPSK | 20          | 19100   | 1900           | 1/0           | 20          | 1100    | 1980           | 20          | 2175    | 2132.5         | 10          | 5230    | 751            | 10          | 5230    | 751            | 23.5                            | 23.5                             | 0.0   |
|                                     | 4A    | 13A  | 2A   |      | QPSK | 20          | 20175   | 1732.5         | 1/0           | 20          | 2175    | 2132.5         | 10          | 5230    | 751            | 20          | 900     | 1960           | 20          | 900     | 1960           | 23.1                            | 23.1                             | 0.0   |
|                                     | 13A   | 2A   | 4A   |      | QPSK | 10          | 23230   | 782            | 1/49          | 10          | 5230    | 751            | 20          | 900     | 1960           | 20          | 2175    | 2132.5         | 20          | 2175    | 2132.5         | 23.9                            | 24.0                             | 0.0   |
| 4A-4A-12A                           | 4A    | 4A   | 12A  |      | QPSK | 20          | 20300   | 1745           | 1/99          | 20          | 2300    | 2145           | 20          | 2050    | 2120           | 10          | 5095    | 737.5          | 10          | 5095    | 737.5          | 23.3                            | 23.4                             | 0.1   |
|                                     | 12A   | 4A   | 4A   |      | QPSK | 10          | 23095   | 707.5          | 1/0           | 10          | 5095    | 737.5          | 20          | 2050    | 2120           | 20          | 2300    | 2145           | 20          | 2300    | 2145           | 24.4                            | 24.5                             | 0.1   |
| 4A-4A-17A                           | 4A    | 4A   | 17A  |      | QPSK | 20          | 20300   | 1745           | 1/99          | 20          | 2300    | 2145           | 20          | 2050    | 2120           | 10          | 5790    | 740            | 10          | 5790    | 740            | 23.3                            | 23.4                             | 0.1   |
| 5A-66A-66A                          | 5A    | 66A  | 66A  |      | QPSK | 10          | 20525   | 836.5          | 1/0           | 10          | 2525    | 881.5          | 20          | 66786   | 2145           | 20          | 67036   | 2170           | 20          | 67036   | 2170           | 23.9                            | 24.1                             | 0.2   |
|                                     | 66A   | 66A  | 5A   |      | QPSK | 20          | 132322  | 1745           | 1/0           | 20          | 66786   | 2145           | 20          | 67036   | 2170           | 10          | 2525    | 881.5          | 20          | 2525    | 881.5          | 23.1                            | 23.1                             | 0.1   |
| 12A-66A-66A                         | 12A   | 66A  | 66A  |      | QPSK | 10          | 23095   | 707.5          | 1/0           | 10          | 5095    | 737.5          | 20          | 66786   | 2145           | 20          | 67036   | 2170           | 20          | 67036   | 2170           | 24.4                            | 24.5                             | 0.0   |
|                                     | 66A   | 66A  | 12A  |      | QPSK | 20          | 132322  | 1745           | 1/0           | 20          | 66786   | 2145           | 20          | 67036   | 2170           | 10          | 5095    | 737.5          | 10          | 5095    | 737.5          | 23.1                            | 23.2                             | 0.1   |
| 26A-41C                             | 26A   | 41C  | 41C  |      | QPSK | 15          | 26865   | 831.5          | 1/0           | 15          | 8865    | 876.5          | 20          | 40620   | 2593           | 20          | 40818   | 2612.8         | 20          | 40818   | 2612.8         | 23.8                            | 23.8                             | 0.0   |
| 2A-2A                               | 2A    | 2A   |      |      | QPSK | 20          | 19100   | 1900           | 1/0           | 20          | 1100    | 1980           | 20          | 700     | 1940           |             |         |                |             |         |                | 23.5                            | 23.6                             | 0.0   |
| 41A-41A                             | 41A   | 41A  |      |      | QPSK | 20          | 39750   | 2506           | 1/0           | 20          | 39750   | 2506           | 20          | 41490   | 2680           |             |         |                |             |         |                | 21.9                            | 21.8                             | -0.1  |
| 41A-41C                             | 41A   | 41C  | 41C  |      | QPSK | 20          | 39750   | 2506           | 1/0           | 20          | 39750   | 2506           | 20          | 41490   | 2680           | 20          | 41292   | 2660.2         | 20          | 41292   | 2660.2         | 21.9                            | 21.8                             | 0.0   |
|                                     | 41C   | 41C  | 41A  |      | QPSK | 20          | 39750   | 2506           | 1/0           | 20          | 39750   | 2506           | 20          | 39948   | 2525.8         | 20          | 41490   | 2680           | 20          | 41490   | 2680           | 21.9                            | 21.8                             | 0.0   |
| 41C-41C                             | 41C   | 41C  | 41C  | 41C  | QPSK | 20          | 39750   | 2506           | 1/0           | 20          | 39750   | 2506           | 20          | 39948   | 2525.8         | 20          | 41490   | 2680           | 20          | 41490   | 2680           | 21.9                            | 21.9                             | 0.0   |
| 41A-41D                             | 41A   | 41D  | 41D  | 41D  | QPSK | 20          | 39750   | 2506           | 1/0           | 20          | 39750   | 2506           | 20          | 41490   | 2680           | 20          | 41292   | 2660.2         | 20          | 41292   | 2660.2         | 21.9                            | 21.8                             | -0.1  |
| 2C                                  | 2C    | 2C   |      |      | QPSK | 20          | 19100   | 1900           | 1/0           | 20          | 1100    | 1980           | 20          | 902     | 1960.2         |             |         |                |             |         |                | 23.5                            | 23.6                             | 0.0   |
| 66B                                 | 66B   | 66B  |      |      | QPSK | 15          | 132597  | 1772.5         | 1/37          | 15          | 67061   | 2172.5         | 5           | 66968   | 2163.2         |             |         |                |             |         |                | 23.2                            | 23.4                             | 0.2   |
| 66C                                 | 66C   | 66C  |      |      | QPSK | 20          | 132322  | 1745           | 1/0           | 20          | 66786   | 2145           | 20          | 66984   | 2164.8         |             |         |                |             |         |                | 23.1                            | 23.0                             | 0.0   |

**Note(s):**

- Per KDB 941225 D05A LTE Rel. 10 KDB Inquiry Sheet: SAR is excluded for Carrier Aggregation when measured power does not exceed LTE Release 8 by more than a 1/4 dB.
- When the same frequency band is used for both contiguous and non-contiguous in DL CA Intra band, power was measured using the configuration with the largest aggregated bandwidth and maximum output power among the contiguous and non-contiguous in DL CA Intra band configurations.

**3. DL CA with downlink 4X4 MIMO output power results**

| E-UTRA CA<br>configuration (BCS) | Bands |       |       |      |      | UL   |             |         |                |           | DL          |         |                |             |         |                |             |         |                | LTE Rel 8<br>Tx. Power<br>[dBm] | LTE Rel 10<br>Tx. Power<br>[dBm] | Delta |      |
|----------------------------------|-------|-------|-------|------|------|------|-------------|---------|----------------|-----------|-------------|---------|----------------|-------------|---------|----------------|-------------|---------|----------------|---------------------------------|----------------------------------|-------|------|
|                                  | PCC   | SCC1  | SCC2  | SCC3 | SCC4 | PCC  |             |         |                |           | PCC         |         |                | SCC1        |         |                | SCC2        |         |                |                                 |                                  |       |      |
|                                  | 1st   | 2nd   | 3rd   | 4th  | 5th  | Mode | BW<br>(MHz) | Channel | Freq.<br>(MHz) | RB/Offset | BW<br>(MHz) | Channel | Freq.<br>(MHz) | BW<br>(MHz) | Channel | Freq.<br>(MHz) | BW<br>(MHz) | Channel | Freq.<br>(MHz) |                                 |                                  |       |      |
| 2A-[66A]                         | 2A    | [66A] |       |      |      | QPSK | 20          | 19100   | 1900           | 1/0       | 20          | 1100    | 1980           | 20          | 66786   | 2145           |             |         |                |                                 | 23.5                             | 23.5  | 0.0  |
|                                  | [66A] | 2A    |       |      |      |      | QPSK        | 20      | 132322         | 1745      | 1/0         | 20      | 66786          | 2145        | 20      | 900            |             | 1960    |                |                                 |                                  | 23.1  | 23.1 |
| [4A]-12A                         | [4A]  | 12A   |       |      |      | QPSK | 20          | 20175   | 1732.5         | 1/0       | 20          | 2175    | 2132.5         | 10          | 5095    | 737.5          |             |         |                |                                 | 23.1                             | 23.1  | 0.0  |
|                                  | 12A   | [4A]  |       |      |      | QPSK | 10          | 23095   | 707.5          | 1/0       | 10          | 5095    | 737.5          | 20          | 2175    | 2132.5         |             |         |                |                                 | 24.4                             | 24.5  | 0.0  |
| [4A]-17A                         | [4A]  | 17A   |       |      |      | QPSK | 20          | 20175   | 1732.5         | 1/0       | 20          | 2175    | 2132.5         | 10          | 5790    | 740            |             |         |                |                                 | 23.1                             | 23.2  | 0.1  |
|                                  | 17A   | [4A]  |       |      |      | QPSK | 10          | 23790   | 710            | 1/0       | 10          | 5790    | 740            | 20          | 2175    | 2132.5         |             |         |                |                                 | 24.4                             | 24.4  | 0.0  |
| 2A-[4A]-5A                       | 2A    | [4A]  | 5A    |      |      | QPSK | 20          | 19100   | 1900           | 1/0       | 20          | 1100    | 1980           | 20          | 2175    | 2132.5         | 10          | 2525    | 881.5          | 23.5                            | 23.6                             | 0.1   |      |
|                                  | [4A]  | 5A    | 2A    |      |      | QPSK | 10          | 20525   | 836.5          | 1/0       | 10          | 2525    | 881.5          | 20          | 900     | 1960           | 20          | 2175    | 2132.5         | 23.9                            | 23.9                             | 0.1   |      |
|                                  | 5A    | 2A    | [4A]  |      |      | QPSK | 20          | 20175   | 1732.5         | 1/0       | 20          | 2175    | 2132.5         | 10          | 2525    | 881.5          | 20          | 900     | 1960           | 23.1                            | 23.1                             | 0.0   |      |
| 2A-[4A]-13A                      | 2A    | [4A]  | 13A   |      |      | QPSK | 20          | 19100   | 1900           | 1/0       | 20          | 1100    | 1980           | 20          | 2175    | 2132.5         | 10          | 5230    | 751            | 23.5                            | 23.6                             | 0.1   |      |
|                                  | [4A]  | 13A   | 2A    |      |      | QPSK | 10          | 23230   | 782            | 1/49      | 10          | 5230    | 751            | 20          | 900     | 1960           | 20          | 2175    | 2132.5         | 23.9                            | 24.0                             | 0.1   |      |
|                                  | 13A   | 2A    | [4A]  |      |      | QPSK | 20          | 20175   | 1732.5         | 1/0       | 20          | 2175    | 2132.5         | 10          | 5230    | 751            | 20          | 900     | 1960           | 23.1                            | 23.2                             | 0.1   |      |
| 12A-[66A]-[66A]                  | 12A   | [66A] | [66A] |      |      | QPSK | 10          | 23095   | 707.5          | 1/0       | 10          | 5095    | 737.5          | 20          | 66786   | 2145           | 20          | 67036   | 2170           | 24.4                            | 24.5                             | 0.1   |      |
|                                  | [66A] | [66A] | 12A   |      |      | QPSK | 20          | 132322  | 1745           | 1/0       | 20          | 66786   | 2145           | 20          | 67036   | 2170           | 10          | 5095    | 737.5          | 23.1                            | 23.2                             | 0.1   |      |
| [4A]-[4A]                        | [4A]  | [4A]  |       |      |      | QPSK | 20          | 20300   | 1745           | 1/99      | 20          | 2300    | 2145           | 20          | 2050    | 2120           |             |         |                | 23.3                            | 23.4                             | 0.1   |      |

**Note(s):**

- Per KDB 941225 D05A LTE Rel. 10 KDB Inquiry Sheet: SAR is excluded for Carrier Aggregation when measured power does not exceed LTE Release 8 by more than a 1/4 dB.
- When the same frequency band is used for both contiguous and non-contiguous in DL CA Intra band, power was measured using the configuration with the largest aggregated bandwidth and maximum output power among the contiguous and non-contiguous in DL CA Intra band configurations.

## 9.4 Wi-Fi 2.4 GHz (DTS Band)

When the RCV is active in a held-to-ear user scenario, the output power level is reduced. The maximum allowed output powers in all conditions are included in the maximum power document.

Refer to Operational Description for WLAN explanation.

### Measured Results of Normal Wi-Fi

| Antenna          | Mode            | Data Rate | Ch # | Freq. (MHz) | Meas. Avg Pwr (dBm) | Max Output Power (dBm) | SAR Test (Yes/No) | Meas. Avg Pwr (dBm) | Reduced. Output Power (dBm) | SAR Test (Yes/No) |
|------------------|-----------------|-----------|------|-------------|---------------------|------------------------|-------------------|---------------------|-----------------------------|-------------------|
| Wi-Fi SISO Ant.1 | 802.11b         | 1 Mbps    | 1    | 2412.0      | 18.5                | 19.0                   | Yes               | 15.5                | 16.0                        | Yes               |
|                  |                 |           | 6    | 2437.0      | 18.5                | 19.0                   |                   | 15.5                | 16.0                        |                   |
|                  |                 |           | 11   | 2462.0      | 18.0                | 19.0                   |                   | 15.3                | 16.0                        |                   |
|                  |                 |           | 12   | 2467.0      | 2.7                 | 3.5                    | No                | 2.7                 | 3.5                         | No                |
|                  |                 |           | 13   | 2472.0      | 0.0                 | 1.5                    |                   | 0.0                 | 1.5                         |                   |
|                  | 802.11g         | 6 Mbps    | 1    | 2412.0      | Not Required        | 16.0                   | No                | Not Required        | 16.0                        | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |                     | 16.0                        |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |                     | 15.0                        |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |                     | 3.5                         |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |                     | 1.5                         |                   |
|                  | 802.11n (HT20)  | 6.5 Mbps  | 1    | 2412.0      | Not Required        | 15.0                   | No                | Not Required        | 15.0                        | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |                     | 16.0                        |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |                     | 15.0                        |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |                     | 3.5                         |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |                     | 1.5                         |                   |
|                  | 802.11ax (HE20) | 7.3 Mbps  | 1    | 2412.0      | Not Required        | 15.0                   | No                | Not Required        | 15.0                        | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |                     | 16.0                        |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |                     | 15.0                        |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |                     | 3.5                         |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |                     | 1.5                         |                   |
| Wi-Fi SISO Ant.2 | 802.11b         | 1 Mbps    | 1    | 2412.0      | 18.1                | 19.0                   | Yes               | 14.9                | 16.0                        | Yes               |
|                  |                 |           | 6    | 2437.0      | 18.7                | 19.0                   |                   | 15.2                | 16.0                        |                   |
|                  |                 |           | 11   | 2462.0      | 17.9                | 19.0                   |                   | 15.6                | 16.0                        |                   |
|                  |                 |           | 12   | 2467.0      | 2.5                 | 3.5                    | No                | 2.5                 | 3.5                         | No                |
|                  |                 |           | 13   | 2472.0      | -0.5                | 1.5                    |                   | -0.5                | 1.5                         |                   |
|                  | 802.11g         | 6 Mbps    | 1    | 2412.0      | Not Required        | 16.0                   | No                | Not Required        | 16.0                        | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |                     | 16.0                        |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |                     | 15.0                        |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |                     | 3.5                         |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |                     | 1.5                         |                   |
|                  | 802.11n (HT20)  | 6.5 Mbps  | 1    | 2412.0      | Not Required        | 15.0                   | No                | Not Required        | 15.0                        | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |                     | 16.0                        |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |                     | 15.0                        |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |                     | 3.5                         |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |                     | 1.5                         |                   |
|                  | 802.11ax (HE20) | 7.3 Mbps  | 1    | 2412.0      | Not Required        | 15.0                   | No                | Not Required        | 15.0                        | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |                     | 16.0                        |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |                     | 15.0                        |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |                     | 3.5                         |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |                     | 1.5                         |                   |

#### Note(s):

- SAR is not required for 802.11g/n/ax modes when the adjusted SAR for 802.11b is < 1.2 W/kg.
- 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 802.11n/g/ax mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band. Additional output power measurements were not deemed necessary.
- Additionally, SAR is not required for Channels 12 and 13 because the tune-up limit and the measured output power for these two channels are no greater than those for the default test channels. Refer to §6.3.

| Antenna          | Mode            | Data Rate | Ch # | Freq. (MHz) | Meas. Avg Pwr (dBm) | Max Output Power (dBm) | SAR Test (Yes/No) |
|------------------|-----------------|-----------|------|-------------|---------------------|------------------------|-------------------|
| Wi-Fi MIMO Ant.1 | 802.11g         | 6 Mbps    | 1    | 2412.0      | 15.3                | 16.0                   | Yes               |
|                  |                 |           | 6    | 2437.0      | 14.8                | 16.0                   |                   |
|                  |                 |           | 11   | 2462.0      | 13.5                | 15.0                   |                   |
|                  |                 |           | 12   | 2467.0      | 1.2                 | 3.5                    |                   |
|                  |                 |           | 13   | 2472.0      | 0.3                 | 1.5                    |                   |
|                  | 802.11n (HT20)  | 6.5 Mbps  | 1    | 2412.0      | Not Required        | 15.0                   | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |
|                  | 802.11ax (HE20) | 7.3 Mbps  | 1    | 2412.0      | Not Required        | 15.0                   | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |
| Antenna          | Mode            | Data Rate | Ch # | Freq. (MHz) | Meas. Avg Pwr (dBm) | Max Output Power (dBm) | SAR Test (Yes/No) |
| Wi-Fi MIMO Ant.2 | 802.11g         | 6 Mbps    | 1    | 2412.0      | 15.0                | 16.0                   | Yes               |
|                  |                 |           | 6    | 2437.0      | 15.3                | 16.0                   |                   |
|                  |                 |           | 11   | 2462.0      | 14.0                | 15.0                   |                   |
|                  |                 |           | 12   | 2467.0      | 2.6                 | 3.5                    |                   |
|                  |                 |           | 13   | 2472.0      | 0.6                 | 1.5                    |                   |
|                  | 802.11n (HT20)  | 6.5 Mbps  | 1    | 2412.0      | Not Required        | 15.0                   | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |
|                  | 802.11ax (HE20) | 7.3 Mbps  | 1    | 2412.0      | Not Required        | 15.0                   | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |

**Note(s):**

5. SAR is not required for 802.11g/n/ax modes when the adjusted SAR for 802.11b is < 1.2 W/kg.
6. 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 802.11n/g/ax mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band. Additional output power measurements were not deemed necessary.
7. Additionally, SAR is not required for Channels 12 and 13 because the tune-up limit and the measured output power for these two channels are no greater than those for the default test channels. Refer to §6.3.

**Measured Results of RSDB Wi-Fi**

| Antenna          | Mode            | Data Rate | Ch # | Freq. (MHz) | Meas. Avg Pwr (dBm) | Max Output Power (dBm) | SAR Test (Yes/No) | Meas. Avg Pwr (dBm) | Reduced. Output Power (dBm) | SAR Test (Yes/No) |
|------------------|-----------------|-----------|------|-------------|---------------------|------------------------|-------------------|---------------------|-----------------------------|-------------------|
| Wi-Fi SISO Ant.1 | 802.11b         | 1 Mbps    | 1    | 2412.0      | 15.5                | 16.0                   | Yes               | 13.5                | 14.0                        | Yes               |
|                  |                 |           | 6    | 2437.0      | 15.5                | 16.0                   |                   | 13.8                | 14.0                        |                   |
|                  |                 |           | 11   | 2462.0      | 15.3                | 16.0                   |                   | 13.3                | 14.0                        |                   |
|                  |                 |           | 12   | 2467.0      | 2.7                 | 3.5                    | No                | 2.7                 | 3.5                         | No                |
|                  |                 |           | 13   | 2472.0      | 0.0                 | 1.5                    |                   | 0.0                 | 1.5                         |                   |
|                  | 802.11g         | 6 Mbps    | 1    | 2412.0      | Not Required        | 16.0                   | No                | Not Required        | 14.0                        | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |                     | 14.0                        |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |                     | 14.0                        |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |                     | 3.5                         |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |                     | 1.5                         |                   |
|                  | 802.11n (HT20)  | 6.5 Mbps  | 1    | 2412.0      | Not Required        | 15.0                   | No                | Not Required        | 14.0                        | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |                     | 14.0                        |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |                     | 14.0                        |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |                     | 3.5                         |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |                     | 1.5                         |                   |
|                  | 802.11ax (HE20) | 7.3 Mbps  | 1    | 2412.0      | Not Required        | 15.0                   | No                | Not Required        | 14.0                        | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |                     | 14.0                        |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |                     | 14.0                        |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |                     | 3.5                         |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |                     | 1.5                         |                   |
| Antenna          | Mode            | Data Rate | Ch # | Freq. (MHz) | Meas. Avg Pwr (dBm) | Max Output Power (dBm) | SAR Test (Yes/No) | Meas. Avg Pwr (dBm) | Reduced. Output Power (dBm) | SAR Test (Yes/No) |
| Wi-Fi SISO Ant.2 | 802.11b         | 1 Mbps    | 1    | 2412.0      | 14.9                | 16.0                   | Yes               | 13.3                | 14.0                        | Yes               |
|                  |                 |           | 6    | 2437.0      | 15.2                | 16.0                   |                   | 13.2                | 14.0                        |                   |
|                  |                 |           | 11   | 2462.0      | 15.6                | 16.0                   |                   | 12.9                | 14.0                        |                   |
|                  |                 |           | 12   | 2467.0      | 2.5                 | 3.5                    | No                | 2.5                 | 3.5                         | No                |
|                  |                 |           | 13   | 2472.0      | -0.5                | 1.5                    |                   | -0.5                | 1.5                         |                   |
|                  | 802.11g         | 6 Mbps    | 1    | 2412.0      | Not Required        | 16.0                   | No                | Not Required        | 14.0                        | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |                     | 14.0                        |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |                     | 14.0                        |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |                     | 3.5                         |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |                     | 1.5                         |                   |
|                  | 802.11n (HT20)  | 6.5 Mbps  | 1    | 2412.0      | Not Required        | 15.0                   | No                | Not Required        | 14.0                        | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |                     | 14.0                        |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |                     | 14.0                        |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |                     | 3.5                         |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |                     | 1.5                         |                   |
|                  | 802.11ax (HE20) | 7.3 Mbps  | 1    | 2412.0      | Not Required        | 15.0                   | No                | Not Required        | 14.0                        | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |                     | 14.0                        |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |                     | 14.0                        |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |                     | 3.5                         |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |                     | 1.5                         |                   |
| Antenna          | Mode            | Data Rate | Ch # | Freq. (MHz) | Meas. Avg Pwr (dBm) | Max Output Power (dBm) | SAR Test (Yes/No) |                     |                             |                   |
| Wi-Fi MIMO Ant.1 | 802.11g         | 6 Mbps    | 1    | 2412.0      | 15.3                | 16.0                   | Yes               |                     |                             |                   |
|                  |                 |           | 6    | 2437.0      | 14.8                | 16.0                   |                   |                     |                             |                   |
|                  |                 |           | 11   | 2462.0      | 13.5                | 15.0                   |                   |                     |                             |                   |
|                  |                 |           | 12   | 2467.0      | 1.2                 | 3.5                    |                   |                     |                             |                   |
|                  |                 |           | 13   | 2472.0      | 0.3                 | 1.5                    |                   |                     |                             |                   |
|                  | 802.11n (HT20)  | 6.5 Mbps  | 1    | 2412.0      | Not Required        | 15.0                   | No                |                     |                             |                   |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |                     |                             |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |                     |                             |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |                     |                             |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |                     |                             |                   |
|                  | 802.11ax (HE20) | 7.3 Mbps  | 1    | 2412.0      | Not Required        | 15.0                   | No                |                     |                             |                   |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |                     |                             |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |                     |                             |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |                     |                             |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |                     |                             |                   |

| Antenna          | Mode            | Data Rate | Ch # | Freq. (MHz) | Meas. Avg Pwr (dBm) | Max Output Power (dBm) | SAR Test (Yes/No) |
|------------------|-----------------|-----------|------|-------------|---------------------|------------------------|-------------------|
| Wi-Fi MIMO Ant.2 | 802.11g         | 6 Mbps    | 1    | 2412.0      | 15.0                | 16.0                   | Yes               |
|                  |                 |           | 6    | 2437.0      | 15.3                | 16.0                   |                   |
|                  |                 |           | 11   | 2462.0      | 14.0                | 15.0                   |                   |
|                  |                 |           | 12   | 2467.0      | 2.6                 | 3.5                    |                   |
|                  |                 |           | 13   | 2472.0      | 0.6                 | 1.5                    |                   |
|                  | 802.11n (HT20)  | 6.5 Mbps  | 1    | 2412.0      | Not Required        | 15.0                   | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |
|                  | 802.11ax (HE20) | 7.3 Mbps  | 1    | 2412.0      | Not Required        | 15.0                   | No                |
|                  |                 |           | 6    | 2437.0      |                     | 16.0                   |                   |
|                  |                 |           | 11   | 2462.0      |                     | 15.0                   |                   |
|                  |                 |           | 12   | 2467.0      |                     | 3.5                    |                   |
|                  |                 |           | 13   | 2472.0      |                     | 1.5                    |                   |

**Note(s):**

- SAR is not required for 802.11g/n/ax modes when the adjusted SAR for 802.11b is < 1.2 W/kg.
- 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 802.11n/g/ax mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band. Additional output power measurements were not deemed necessary.
- Additionally, SAR is not required for Channels 12 and 13 because the tune-up limit and the measured output power for these two channels are no greater than those for the default test channels. Refer to §6.3.
- MIMO SAR test is required body-worn & Hotspot exposure condition of RSDB Wi-Fi mode.

## 9.5 Wi-Fi 5GHz (U-NII Bands)

When the RCV is active in a held-to-ear user scenario, the output power level is reduced. The maximum allowed output powers in all conditions are included in the maximum power document.

Refer to Operational Description for WLAN explanation.

SAR test is followed below guides according to KDB 248227;

1. For “Not required”, SAR Test reduction was applied from KDB 248227 guidance and TCB workshop guidance 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/n/ac/ax mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band.
2. When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/n/ac/ax modes, the channel in the lower order/sequence 802.11 mode (i.e. a, n, ac, ax) is selected.
3. When UNII band 2A's specified maximum output power is higher or same than UNII band 1, begin SAR measurement in UNII band 2A; and if the highest reported SAR for UNII band 2A is
  - $\leq 1.2$  W/kg, SAR is not required for UNII band 1
  - $> 1.2$  W/kg, both bands should be tested independently for SAR.
4. When UNII band 1's specified maximum output power is higher than UNII band 2A, begin SAR measurement in UNII band 1; and if the highest reported SAR for UNII band 1 is
  - $\leq 1.2$  W/kg, SAR is not required for UNII band 2A
  - $> 1.2$  W/kg, both bands should be tested independently for SAR.

**Measured Results of Normal Wi-Fi SISO Ant.1**

| Antenna    | Band (GHz)     | Mode             | Data Rate | Ch # | Freq. (MHz) | Max Pwr.      |                        |                   | Reduction Pwr. |                        |                   |
|------------|----------------|------------------|-----------|------|-------------|---------------|------------------------|-------------------|----------------|------------------------|-------------------|
|            |                |                  |           |      |             | Avg Pwr (dBm) | Max Output Power (dBm) | SAR Test (Yes/No) | Avg Pwr (dBm)  | Max Output Power (dBm) | SAR Test (Yes/No) |
| SISO Ant.1 | 5.3 (UNII 2A)  | 802.11a          | 6 Mbps    | 52   | 5260.0      | 16.0          | 17.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | 15.9          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | 15.9          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | 15.9          |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 52   | 5260.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 54   | 5270.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 52   | 5260.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 54   | 5270.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 58   | 5290.0      | Not Required  | 14.0                   | No                | 11.8           | 13.0                   | Yes               |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 52   | 5260.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 54   | 5270.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 58   | 5290.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            | 5.5 (U-NII 2C) | 802.11a          | 6 Mbps    | 100  | 5500.0      | 13.8          | 15.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | 14.1          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | 14.2          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | 14.3          |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 106  | 5530.0      | Not Required  | 13.0                   | No                | 11.7           | 13.0                   | Yes               |
|            |                |                  |           | 122  | 5610.0      | Not Required  |                        |                   | 11.9           |                        |                   |
|            |                |                  |           | 138  | 5690.0      | Not Required  |                        |                   | 12.2           |                        |                   |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 106  | 5530.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 122  | 5610.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 138  | 5690.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            | 5.8 (U-NII 3)  | 802.11a          | 6 Mbps    | 149  | 5745.0      | 16.3          | 17.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | 16.5          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | 16.3          |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 149  | 5745.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 151  | 5755.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 149  | 5745.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 151  | 5755.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 155  | 5775.0      | Not Required  | 14.0                   | No                | 12.4           | 13.0                   | Yes               |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 149  | 5745.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 151  | 5755.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 155  | 5775.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |

**Measured Results of Normal Wi-Fi SISO Ant.2**

| Antenna    | Band (GHz)     | Mode             | Data Rate | Ch # | Freq. (MHz) | Max Pwr.      |                        |                   | Reduction Pwr. |                        |                   |
|------------|----------------|------------------|-----------|------|-------------|---------------|------------------------|-------------------|----------------|------------------------|-------------------|
|            |                |                  |           |      |             | Avg Pwr (dBm) | Max Output Power (dBm) | SAR Test (Yes/No) | Avg Pwr (dBm)  | Max Output Power (dBm) | SAR Test (Yes/No) |
| SISO Ant.2 | 5.3 (UNII 2A)  | 802.11a          | 6 Mbps    | 52   | 5260.0      | 16.3          | 17.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | 16.3          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | 16.3          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | 16.4          |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 52   | 5260.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 54   | 5270.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 52   | 5260.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 54   | 5270.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 58   | 5290.0      | Not Required  | 14.0                   | No                | 12.3           | 13.0                   | Yes               |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 52   | 5260.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 54   | 5270.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 58   | 5290.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            | 5.5 (U-NII 2C) | 802.11a          | 6 Mbps    | 100  | 5500.0      | 14.0          | 15.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | 14.1          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | 14.3          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | 14.3          |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 106  | 5530.0      | Not Required  | 13.0                   | No                | 12.4           | 13.0                   | Yes               |
|            |                |                  |           | 122  | 5610.0      | Not Required  |                        |                   | 12.5           |                        |                   |
|            |                |                  |           | 138  | 5690.0      | Not Required  |                        |                   | 12.6           |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 106  | 5530.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 122  | 5610.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 138  | 5690.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            | 5.8 (U-NII 3)  | 802.11a          | 6 Mbps    | 149  | 5745.0      | 15.6          | 17.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | 15.7          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | 15.7          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 149  | 5745.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 157  | 5785.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 151  | 5755.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 149  | 5745.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 151  | 5755.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 157  | 5785.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 151  | 5755.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 155  | 5775.0      | Not Required  | 14.0                   | No                | 11.5           | 13.0                   | Yes               |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 149  | 5745.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 151  | 5755.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 157  | 5785.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 155  | 5775.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |

**Measured Results of Normal Wi-Fi MIMO Ant.1**

| Antenna    | Band (GHz)     | Mode             | Data Rate | Ch # | Freq. (MHz) | Max Pwr.      |                        |                   | Reduction Pwr. |                        |                   |
|------------|----------------|------------------|-----------|------|-------------|---------------|------------------------|-------------------|----------------|------------------------|-------------------|
|            |                |                  |           |      |             | Avg Pwr (dBm) | Max Output Power (dBm) | SAR Test (Yes/No) | Avg Pwr (dBm)  | Max Output Power (dBm) | SAR Test (Yes/No) |
| MIMO Ant.1 | 5.3 (UNII 2A)  | 802.11a          | 6 Mbps    | 52   | 5260.0      | 16.8          | 17.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | 16.8          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | 16.7          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | 16.7          |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 52   | 5260.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 54   | 5270.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 52   | 5260.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 54   | 5270.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 58   | 5290.0      | Not Required  | 14.0                   | No                | 12.9           | 13.0                   | Yes               |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 52   | 5260.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 54   | 5270.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 58   | 5290.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            | 5.5 (U-NII 2C) | 802.11a          | 6 Mbps    | 100  | 5500.0      | 13.8          | 15.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | 14.0          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | 14.1          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | 14.3          |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 106  | 5530.0      | Not Required  | 13.0                   | No                | 11.7           | 13.0                   | Yes               |
|            |                |                  |           | 122  | 5610.0      | Not Required  |                        |                   | 11.8           |                        |                   |
|            |                |                  |           | 138  | 5690.0      | Not Required  |                        |                   | 12.1           |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 106  | 5530.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 122  | 5610.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 138  | 5690.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            | 5.8 (U-NII 3)  | 802.11a          | 6 Mbps    | 149  | 5745.0      | 16.3          | 17.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | 16.4          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | 16.3          |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 149  | 5745.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 151  | 5755.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 149  | 5745.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 151  | 5755.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 155  | 5775.0      | Not Required  | 14.0                   | No                | 12.3           | 13.0                   | Yes               |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 149  | 5745.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 151  | 5755.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 155  | 5775.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |

**Note(s):**

1. MIMO SAR test is required body-worn & Hotspot exposure condition of Normal Wi-Fi mode & RSDB Wi-Fi mode.

**Measured Results of Normal Wi-Fi MIMO Ant.2**

| Antenna    | Band (GHz)     | Mode             | Data Rate | Ch # | Freq. (MHz) | Max Pwr.      |                        |                   | Reduction Pwr. |                        |                   |
|------------|----------------|------------------|-----------|------|-------------|---------------|------------------------|-------------------|----------------|------------------------|-------------------|
|            |                |                  |           |      |             | Avg Pwr (dBm) | Max Output Power (dBm) | SAR Test (Yes/No) | Avg Pwr (dBm)  | Max Output Power (dBm) | SAR Test (Yes/No) |
| MIMO Ant.2 | 5.3 (UNII 2A)  | 802.11a          | 6 Mbps    | 52   | 5260.0      | 16.3          | 17.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | 16.2          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | 16.2          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | 16.3          |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 52   | 5260.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 54   | 5270.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 52   | 5260.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 54   | 5270.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 58   | 5290.0      | Not Required  | 14.0                   | No                | 12.3           | 13.0                   | Yes               |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 52   | 5260.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 54   | 5270.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 58   | 5290.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            | 5.5 (U-NII 2C) | 802.11a          | 6 Mbps    | 100  | 5500.0      | 13.3          | 15.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | 13.4          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | 13.4          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | 13.6          |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 106  | 5530.0      | Not Required  | 13.0                   | No                | 11.2           | 13.0                   | Yes               |
|            |                |                  |           | 122  | 5610.0      | Not Required  |                        |                   | 11.3           |                        |                   |
|            |                |                  |           | 138  | 5690.0      | Not Required  |                        |                   | 11.4           |                        |                   |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 106  | 5530.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 122  | 5610.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 138  | 5690.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            | 5.8 (U-NII 3)  | 802.11a          | 6 Mbps    | 149  | 5745.0      | 15.8          | 17.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | 15.8          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | 15.8          |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 149  | 5745.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 151  | 5755.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 149  | 5745.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 151  | 5755.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 155  | 5775.0      | Not Required  | 14.0                   | No                | 11.4           | 13.0                   | Yes               |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 149  | 5745.0      | Not Required  | 17.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 151  | 5755.0      | Not Required  | 15.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 155  | 5775.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |

**Note(s):**

1. MIMO SAR test is required body-worn & Hotspot exposure condition of Normal Wi-Fi mode & RSDB Wi-Fi mode.

**Measured Results of RSDB Wi-Fi SISO Ant.1**

| Antenna    | Band (GHz)     | Mode             | Data Rate | Ch # | Freq. (MHz) | Max Pwr.      |                        |                   | Reduction Pwr. |                        |                   |
|------------|----------------|------------------|-----------|------|-------------|---------------|------------------------|-------------------|----------------|------------------------|-------------------|
|            |                |                  |           |      |             | Avg Pwr (dBm) | Max Output Power (dBm) | SAR Test (Yes/No) | Avg Pwr (dBm)  | Max Output Power (dBm) | SAR Test (Yes/No) |
| SISO Ant.1 | 5.3 (UNII 2A)  | 802.11a          | 6 Mbps    | 52   | 5260.0      | Not Required  | 14.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 52   | 5260.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 54   | 5270.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 52   | 5260.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 54   | 5270.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 58   | 5290.0      | 12.9          | 14.0                   | No                | 11.8           | 13.0                   | Yes               |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 52   | 5260.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 54   | 5270.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 58   | 5290.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            | 5.5 (U-NII 2C) | 802.11a          | 6 Mbps    | 100  | 5500.0      | 12.7          | 14.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | 13.0          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | 13.1          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | 13.3          |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 106  | 5530.0      | Not Required  | 13.0                   | No                | 11.7           | 13.0                   | Yes               |
|            |                |                  |           | 122  | 5610.0      | Not Required  |                        |                   | 11.9           |                        |                   |
|            |                |                  |           | 138  | 5690.0      | Not Required  |                        |                   | 12.2           |                        |                   |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 106  | 5530.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 122  | 5610.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 138  | 5690.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11a          | 6 Mbps    | 149  | 5745.0      | Not Required  | 14.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 149  | 5745.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 157  | 5785.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 151  | 5755.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 159  | 5795.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 149  | 5745.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 157  | 5785.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 151  | 5755.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 159  | 5795.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 155  | 5775.0      | 13.5          |                        |                   | 12.4           |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 149  | 5745.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | Yes               |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 151  | 5755.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 151  | 5755.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 155  | 5775.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |

**Measured Results of RSDB Wi-Fi SISO Ant.2**

| Antenna    | Band (GHz)     | Mode             | Data Rate | Ch # | Freq. (MHz) | Max Pwr.      |                        |                   | Reduction Pwr. |                        |                   |
|------------|----------------|------------------|-----------|------|-------------|---------------|------------------------|-------------------|----------------|------------------------|-------------------|
|            |                |                  |           |      |             | Avg Pwr (dBm) | Max Output Power (dBm) | SAR Test (Yes/No) | Avg Pwr (dBm)  | Max Output Power (dBm) | SAR Test (Yes/No) |
| SISO Ant.2 | 5.3 (UNII 2A)  | 802.11a          | 6 Mbps    | 52   | 5260.0      | Not Required  | 14.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 52   | 5260.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 54   | 5270.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 52   | 5260.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 54   | 5270.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 58   | 5290.0      | 13.4          | 14.0                   | No                | 12.3           | 13.0                   | Yes               |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 52   | 5260.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 54   | 5270.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 58   | 5290.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            | 5.5 (U-NII 2C) | 802.11a          | 6 Mbps    | 100  | 5500.0      | 12.9          | 14.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | 13.1          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | 13.1          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | 13.2          |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 106  | 5530.0      | Not Required  | 13.0                   | No                | 12.4           | 13.0                   | Yes               |
|            |                |                  |           | 122  | 5610.0      | Not Required  |                        |                   | 12.5           |                        |                   |
|            |                |                  |           | 138  | 5690.0      | Not Required  |                        |                   | 12.6           |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 106  | 5530.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 122  | 5610.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 138  | 5690.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            | 5.8 (U-NII 3)  | 802.11a          | 6 Mbps    | 149  | 5745.0      | Not Required  | 14.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 149  | 5745.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 151  | 5755.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 149  | 5745.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 151  | 5755.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 155  | 5775.0      | 12.5          | 14.0                   | No                | 11.5           | 13.0                   | Yes               |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 149  | 5745.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 151  | 5755.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 155  | 5775.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |

**Measured Results of RSDB Wi-Fi MIMO Ant.1**

| Antenna    | Band (GHz)     | Mode             | Data Rate | Ch # | Freq. (MHz) | Max Pwr.      |                        |                   | Reduction Pwr. |                        |                   |
|------------|----------------|------------------|-----------|------|-------------|---------------|------------------------|-------------------|----------------|------------------------|-------------------|
|            |                |                  |           |      |             | Avg Pwr (dBm) | Max Output Power (dBm) | SAR Test (Yes/No) | Avg Pwr (dBm)  | Max Output Power (dBm) | SAR Test (Yes/No) |
| MIMO Ant.1 | 5.3 (UNII 2A)  | 802.11a          | 6 Mbps    | 52   | 5260.0      | Not Required  | 14.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 52   | 5260.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 54   | 5270.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 52   | 5260.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 54   | 5270.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 58   | 5290.0      | 13.8          | 14.0                   | No                | 12.9           | 13.0                   | Yes               |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 52   | 5260.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 54   | 5270.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 58   | 5290.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            | 5.5 (U-NII 2C) | 802.11a          | 6 Mbps    | 100  | 5500.0      | 12.7          | 14.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | 13.0          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | 13.0          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | 13.3          |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 106  | 5530.0      | Not Required  | 13.0                   | No                | 11.7           | 13.0                   | Yes               |
|            |                |                  |           | 122  | 5610.0      | Not Required  |                        |                   | 11.8           |                        |                   |
|            |                |                  |           | 138  | 5690.0      | Not Required  |                        |                   | 12.1           |                        |                   |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 106  | 5530.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 122  | 5610.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 138  | 5690.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 5.8 (U-NII 3)    | 802.11a   | 149  | 5745.0      | Not Required  | 14.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 149  | 5745.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 157  | 5785.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 149  | 5745.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 151  | 5755.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 149  | 5745.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 151  | 5755.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 155  | 5775.0      | 13.4          | 14.0                   | No                | 12.3           | 13.0                   | Yes               |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 149  | 5745.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 151  | 5755.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 155  | 5775.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |

**Note(s):**

1. MIMO SAR test is required body-worn & Hotspot exposure condition of Normal Wi-Fi mode & RSDB Wi-Fi mode.

**Measured Results of RSDB Wi-Fi MIMO Ant.2**

| Antenna    | Band (GHz)     | Mode             | Data Rate | Ch # | Freq. (MHz) | Max Pwr.      |                        |                   | Reduction Pwr. |                        |                   |
|------------|----------------|------------------|-----------|------|-------------|---------------|------------------------|-------------------|----------------|------------------------|-------------------|
|            |                |                  |           |      |             | Avg Pwr (dBm) | Max Output Power (dBm) | SAR Test (Yes/No) | Avg Pwr (dBm)  | Max Output Power (dBm) | SAR Test (Yes/No) |
| MIMO Ant.2 | 5.3 (UNII 2A)  | 802.11a          | 6 Mbps    | 52   | 5260.0      | Not Required  | 14.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 52   | 5260.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 54   | 5270.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 52   | 5260.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 54   | 5270.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 58   | 5290.0      | 13.4          | 14.0                   | No                | 12.3           | 13.0                   | Yes               |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 52   | 5260.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 56   | 5280.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 60   | 5300.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 64   | 5320.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 54   | 5270.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 62   | 5310.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 58   | 5290.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            | 5.5 (U-NII 2C) | 802.11a          | 6 Mbps    | 100  | 5500.0      | 12.2          | 14.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | 12.3          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | 12.3          |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | 12.5          |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 100  | 5500.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 120  | 5600.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 102  | 5510.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 118  | 5590.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 106  | 5530.0      | Not Required  | 13.0                   | No                | 11.2           | 13.0                   | Yes               |
|            |                |                  |           | 122  | 5610.0      | Not Required  |                        |                   | 11.3           |                        |                   |
|            |                |                  |           | 138  | 5690.0      | Not Required  |                        |                   | 11.4           |                        |                   |
|            |                |                  |           | 100  | 5500.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 120  | 5600.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 124  | 5620.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 144  | 5720.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 102  | 5510.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 118  | 5590.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 126  | 5630.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 142  | 5710.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 106  | 5530.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 122  | 5610.0      | Not Required  | 13.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 138  | 5690.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 149  | 5745.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11a          | 6 Mbps    | 165  | 5825.0      | Not Required  | 14.0                   | Yes               | Not Required   | 13.0                   | No                |
|            |                |                  |           | 149  | 5745.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT20)   | 6.5 Mbps  | 149  | 5745.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 151  | 5755.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11n (HT40)   | 13.5 Mbps | 159  | 5795.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 149  | 5745.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT20) | 6.5 Mbps  | 151  | 5755.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 155  | 5775.0      | 12.5          |                        |                   | 11.4           |                        |                   |
|            |                |                  |           | 149  | 5745.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT40) | 13.5 Mbps | 157  | 5785.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 151  | 5755.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ac (VHT80) | 29.3 Mbps | 155  | 5775.0      | 12.5          | 14.0                   | No                | 11.4           | 13.0                   | Yes               |
|            |                |                  |           | 149  | 5745.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 157  | 5785.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE20)  | 7.3 Mbps  | 151  | 5755.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 155  | 5775.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 149  | 5745.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE40)  | 14.6 Mbps | 157  | 5785.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 165  | 5825.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 151  | 5755.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                |                  |           | 159  | 5795.0      | Not Required  |                        |                   | Not Required   |                        |                   |
|            |                | 802.11ax (HE80)  | 30.6 Mbps | 155  | 5775.0      | Not Required  | 14.0                   | No                | Not Required   | 13.0                   | No                |
|            |                |                  |           | 155  | 5775.0      | Not Required  |                        |                   | Not Required   |                        |                   |

**Note(s):**

1. MIMO SAR test is required body-worn & Hotspot exposure condition of Normal Wi-Fi mode & RSDB Wi-Fi mode.

## 9.6 Bluetooth

### Measured Results

| Band (GHz) | Mode        | Ch # | Freq. (MHz) | Maximum Average Power (dBm) |               |
|------------|-------------|------|-------------|-----------------------------|---------------|
|            |             |      |             | Meas Pwr                    | Tune-up Limit |
| 2.4        | GFSK        | 0    | 2402        | 15.6                        | 17.5          |
|            |             | 39   | 2441        | 17.3                        |               |
|            |             | 78   | 2480        | 15.6                        |               |
|            | EDR, 8-DPSK | 0    | 2402        | 10.0                        | 12.0          |
|            |             | 39   | 2441        | 11.4                        |               |
|            |             | 78   | 2480        | 9.8                         |               |
|            | LE, GFSK-1M | 0    | 2402        | 5.1                         | 7.5           |
|            |             | 19   | 2440        | 6.3                         |               |
|            |             | 39   | 2480        | 5.7                         |               |
|            | LE, GFSK-2M | 0    | 2402        | 6.7                         | 9.0           |
|            |             | 19   | 2440        | 7.1                         |               |
|            |             | 39   | 2480        | 6.4                         |               |

### Note(s):

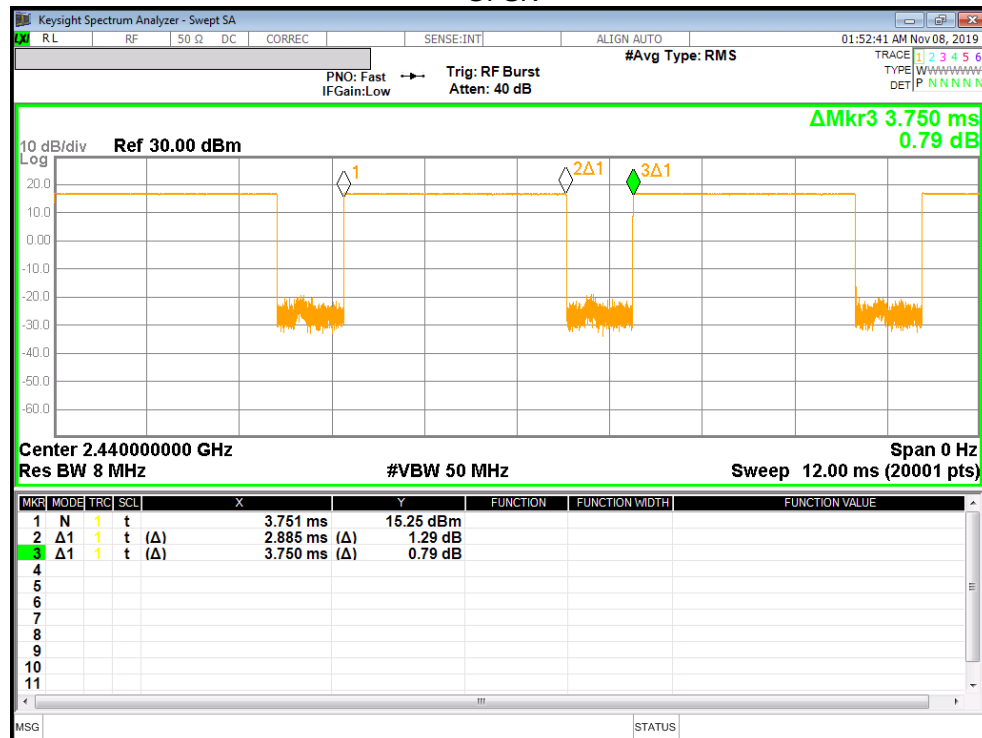
SAR test is evaluated at GFSK mode in Bluetooth.

### Duty Factor Measured Results

| Mode | Type | T on (ms) | Period (ms) | Duty Cycle | Crest Factor (1/duty cycle) |
|------|------|-----------|-------------|------------|-----------------------------|
| GFSK | DH5  | 2.885     | 3.750       | 76.9%      | 1.30                        |

### Duty Cycle plots

#### GFSK



## 10. Measured and Reported (Scaled) SAR Results

### SAR Test Reduction criteria are as follows:

- Reported SAR(W/kg) for WWAN= Measured SAR \*Tune-up Scaling Factor
- Reported SAR(W/kg) for Wi-Fi and Bluetooth= Measured SAR \* Tune-up scaling factor \* Duty Cycle scaling factor
- Duty Cycle scaling factor = 1 / Duty cycle (%)

### KDB 447498 D01 General RF Exposure Guidance:

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

### KDB 648474 D04 Handset SAR:

With headset attached, when the reported SAR for body-worn accessory, measured without a headset connected to the handset, is  $> 1.2$  W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

### KDB 648474 D04 Handset SAR (Phablet Only):

For smart phones, with a display diagonal dimension  $> 15.0$  cm or an overall diagonal dimension  $> 16.0$  cm.

When hotspot mode does not apply, 10-g extremity SAR is required for all surfaces and edges with an antenna located at  $\leq 25$ mm

From that surface or edge in direct contact with a flat phantom, to address interactive hand use exposure conditions. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR  $> 1.2$  W/kg;

However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, Including tolerance, allowed for phablet modes to compare with the  $1.2$  W/kg SAR test reduction threshold.

Additional 1-g SAR testing at 5 mm is not required when hotspot mode 10-g extremity SAR is not required for the surfaces and edges; since all 1-g reported SAR  $< 1.2$  W/kg.

### KDB 941225 D01 SAR test for 3G devices:

When the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq \frac{1}{4}$  dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is  $\leq 1.2$  W/kg, SAR measurement is not required for the secondary mode.

### KDB 941225 D05 SAR for LTE Devices:

SAR test reduction is applied using the following criteria:

- Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel.
- When the reported SAR is  $> 0.8$  W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50% RB configuration for that channel.
- Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are  $> 0.8$  W/kg. Testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation  $< 1.45$  W/kg.
- Testing for 16-QAM modulation is not required because the reported SAR for QPSK is  $< 1.45$  W/Kg and its output power is not more than 0.5 dB higher than that of QPSK.
- Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is  $< 1.45$  W/Kg and its output power is not more than 0.5 dB higher than that of the highest channel bandwidth.
- For LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. 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; therefore, the requirement for H, M and L channels may not fully apply.

**KDB 248227 D01 SAR meas for 802.11:**

SAR test reduction for 802.11 Wi-Fi transmission mode configurations are considered separately for DSSS and OFDM. An initial test position is determined to reduce the number of tests required for certain exposure configurations with multiple test positions. An initial test configuration is determined for each frequency band and aggregated band according to maximum output power, channel bandwidth, wireless mode configurations and other operating parameters to streamline the measurement requirements. For 2.4 GHz DSSS, either the initial test position or DSSS procedure is applied to reduce the number of SAR tests; these are mutually exclusive. For OFDM, an initial test position is only applicable to next to the ear, UMPC mini-tablet and hotspot mode configurations, which is tested using the initial test configuration to facilitate test reduction. For other exposure conditions with a fixed test position, SAR test reduction is determined using only the initial test configuration.

The multiple test positions require SAR measurements in head, hotspot mode or UMPC mini-tablet configurations may be reduced according to the highest reported SAR determined using the initial test position(s) by applying the DSSS or OFDM SAR measurement procedures in the required wireless mode test configuration(s). The initial test position(s) is measured using the highest measured maximum output power channel in the required wireless mode test configuration(s). When the reported SAR for the initial test position is:

- $\leq 0.4$  W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and wireless mode combination within the frequency band or aggregated band. DSSS and OFDM configurations are considered separately according to the required SAR procedures.
- $> 0.4$  W/kg, SAR is repeated using the same wireless mode test 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 reported SAR is  $\leq 0.8$  W/kg or all required test positions are tested.
  - For subsequent test positions with equivalent test separation distance or when exposure is dominated by coupling conditions, the position for maximum coupling condition should be tested.
  - When it is unclear, all equivalent conditions must be tested.
- For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is  $> 0.8$  W/kg, measure the SAR for these 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 test channels are considered.
  - The additional power measurements required for this step should be limited to those necessary for identifying subsequent highest output power channels to apply the test reduction.
- When the specified maximum output power is the same for both UNII 1 and UNII 2A, begin SAR measurements in UNII 2A with the channel with the highest measured output power. If the reported SAR for UNII 2A is  $\leq 1.2$  W/kg, SAR is not required for UNII 1; otherwise treat the remaining bands separately and test them independently for SAR.
- When the specified maximum output power is different between UNII 1 and UNII 2A, begin SAR with the band that has the higher specified maximum output. If the highest reported SAR for the band with the highest specified power is  $\leq 1.2$  W/kg, testing for the band with the lower specified output power is not required; otherwise test the remaining bands independently for SAR.

To determine the initial test position, Area Scans were performed to determine the position with the *Maximum Value of SAR (measured)*. The position that produced the highest *Maximum Value of SAR* is considered the worst case position; thus used as the initial test position.

**10.1 GSM 850**

| Antenna      | RF Exposure Conditions | Mode        | PWR Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg) |        | Plot No. |
|--------------|------------------------|-------------|--------------|------------|---------------|-------|-------------|---------------|-------|----------------|--------|----------|
|              |                        |             |              |            |               |       |             | Tune-up limit | Meas. | Meas.          | Scaled |          |
| Main Ant.1-1 | Head                   | GPRS 4 Slot | N/A          | 0          | Left Touch    | 190   | 836.6       | 29.0          | 27.6  | 0.101          | 0.138  | 1        |
|              |                        |             |              |            | Left Tilt     | 190   | 836.6       | 29.0          | 27.6  | 0.061          | 0.083  |          |
|              |                        |             |              |            | Right Touch   | 190   | 836.6       | 29.0          | 27.6  | 0.151          | 0.207  |          |
|              |                        |             |              |            | Right Tilt    | 190   | 836.6       | 29.0          | 27.6  | 0.074          | 0.101  |          |
|              | Body-worn              | GPRS 4 Slot | N/A          | 15         | Rear          | 190   | 836.6       | 29.0          | 27.6  | 0.324          | 0.444  | 2        |
|              |                        |             |              |            | Front         | 190   | 836.6       | 29.0          | 27.6  | 0.262          | 0.359  |          |
|              | Hotspot                | GPRS 4 Slot | N/A          | 10         | Rear          | 190   | 836.6       | 29.0          | 27.6  | 0.462          | 0.633  | 3        |
|              |                        |             |              |            | Front         | 190   | 836.6       | 29.0          | 27.6  | 0.345          | 0.473  |          |
|              |                        |             |              |            | Edge 2        | 190   | 836.6       | 29.0          | 27.6  | 0.370          | 0.507  |          |
|              |                        |             |              |            | Edge 3        | 190   | 836.6       | 29.0          | 27.6  | 0.299          | 0.410  |          |
|              |                        |             |              |            | Edge 4        | 190   | 836.6       | 29.0          | 27.6  | 0.129          | 0.177  |          |

**10.2 GSM1900**

| Antenna      | RF Exposure Conditions | Mode        | PWR Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg) |        | Plot No. |
|--------------|------------------------|-------------|--------------|------------|---------------|-------|-------------|---------------|-------|----------------|--------|----------|
|              |                        |             |              |            |               |       |             | Tune-up limit | Meas. | Meas.          | Scaled |          |
| Main Ant.1-1 | Head                   | GPRS 4 Slot | Off          | 0          | Left Touch    | 512   | 1850.2      | 25.0          | 23.5  | 0.047          | 0.067  | 4        |
|              |                        |             |              |            | Left Tilt     | 512   | 1850.2      | 25.0          | 23.5  | 0.027          | 0.038  |          |
|              |                        |             |              |            | Right Touch   | 512   | 1850.2      | 25.0          | 23.5  | 0.027          | 0.038  |          |
|              |                        |             |              |            | Right Tilt    | 512   | 1850.2      | 25.0          | 23.5  | 0.022          | 0.031  |          |
|              | Body-worn              | GPRS 4 Slot | Off          | 15         | Rear          | 512   | 1850.2      | 25.0          | 23.5  | 0.214          | 0.303  | 5        |
|              |                        |             |              |            | Front         | 512   | 1850.2      | 25.0          | 23.5  | 0.189          | 0.268  |          |
|              | Hotspot                | GPRS 4 Slot | On           | 10         | Rear          | 661   | 1880.0      | 24.0          | 22.3  | 0.350          | 0.520  |          |
|              |                        |             |              |            | Front         | 661   | 1880.0      | 24.0          | 22.3  | 0.305          | 0.453  |          |
|              |                        |             |              |            | Edge 2        | 661   | 1880.0      | 24.0          | 22.3  | 0.060          | 0.089  |          |
|              |                        |             |              |            | Edge 3        | 512   | 1850.2      | 24.0          | 22.3  | 0.595          | 0.888  |          |
|              |                        |             |              |            |               | 661   | 1880.0      | 24.0          | 22.3  | 0.648          | 0.963  |          |
| Main Ant.1-1 | Product Specific 10-g  | GPRS 4 Slot | Off          | 13         | Edge 3        | 512   | 1850.2      | 25.0          | 23.5  | 0.242          | 0.343  | 7        |
|              |                        |             | On           | 0          | Edge 3        | 661   | 1880.0      | 24.0          | 22.7  | 1.190          | 1.610  |          |

### 10.3 W-CDMA Band II

| Antenna      | RF Exposure Conditions | Mode       | PWR Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg)  |        | Plot No. |
|--------------|------------------------|------------|--------------|------------|---------------|-------|-------------|---------------|-------|-----------------|--------|----------|
|              |                        |            |              |            |               |       |             | Tune-up limit | Meas. | Meas.           | Scaled |          |
| Main Ant.1-1 | Head                   | Rel 99 RMC | Off          | 0          | Left Touch    | 9400  | 1880.0      | 25.0          | 23.6  | 0.126           | 0.172  | 8        |
|              |                        |            |              |            | Left Tilt     | 9400  | 1880.0      | 25.0          | 23.6  | 0.019           | 0.026  |          |
|              |                        |            |              |            | Right Touch   | 9400  | 1880.0      | 25.0          | 23.6  | 0.049           | 0.067  |          |
|              |                        |            |              |            | Right Tilt    | 9400  | 1880.0      | 25.0          | 23.6  | 0.035           | 0.048  |          |
|              | Bod-worn               | Rel 99 RMC | Off          | 15         | Rear          | 9400  | 1880.0      | 25.0          | 23.6  | 0.519           | 0.710  | 9        |
|              |                        |            |              |            | Front         | 9400  | 1880.0      | 25.0          | 23.6  | 0.229           | 0.313  |          |
|              | Hotspot                | Rel 99 RMC | On           | 10         | Rear          | 9400  | 1880.0      | 21.5          | 20.2  | 0.423           | 0.575  |          |
|              |                        |            |              |            | Front         | 9400  | 1880.0      | 21.5          | 20.2  | 0.366           | 0.497  |          |
|              |                        |            |              |            | Edge 2        | 9400  | 1880.0      | 21.5          | 20.2  | 0.074           | 0.101  |          |
|              |                        |            |              |            | Edge 3        | 9262  | 1852.4      | 21.5          | 20.3  | 0.683           | 0.896  |          |
|              |                        |            |              |            |               | 9400  | 1880.0      | 21.5          | 20.2  | 0.785           | 1.066  |          |
|              |                        |            |              |            |               | 9538  | 1907.6      | 21.5          | 19.9  | 0.861           | 1.233  | 10       |
|              |                        |            |              |            | Edge 4        | 9400  | 1880.0      | 21.5          | 20.2  | 0.066           | 0.090  |          |
| Antenna      | RF Exposure Conditions | Mode       | PWR Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 10-g SAR (W/kg) |        | Plot No. |
|              |                        |            |              |            |               |       |             | Tune-up limit | Meas. | Meas.           | Scaled |          |
| Main Ant.1-1 | Product Specific 10-g  | Rel 99 RMC | Off          | 7          | Rear          | 9400  | 1880.0      | 25.0          | 23.6  | 0.380           | 0.520  |          |
|              |                        |            |              | 13         | Edge 3        | 9400  | 1880.0      | 25.0          | 23.6  | 0.264           | 0.361  |          |
|              |                        |            | On           | 0          | Rear          | 9400  | 1880.0      | 21.5          | 20.1  | 1.120           | 1.543  |          |
|              |                        |            |              |            | Edge 3        | 9400  | 1880.0      | 21.5          | 20.1  | 1.340           | 1.846  | 11       |

### 10.4 W-CDMA Band IV

| Antenna      | RF Exposure Conditions | Mode       | PWR Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg)  |        | Plot No. |
|--------------|------------------------|------------|--------------|------------|---------------|-------|-------------|---------------|-------|-----------------|--------|----------|
|              |                        |            |              |            |               |       |             | Tune-up limit | Meas. | Meas.           | Scaled |          |
| Main Ant.1-1 | Head                   | Rel 99 RMC | Off          | 0          | Left Touch    | 1413  | 1732.6      | 25.0          | 23.6  | 0.178           | 0.246  | 12       |
|              |                        |            |              |            | Left Tilt     | 1413  | 1732.6      | 25.0          | 23.6  | 0.091           | 0.126  |          |
|              |                        |            |              |            | Right Touch   | 1413  | 1732.6      | 25.0          | 23.6  | 0.149           | 0.206  |          |
|              |                        |            |              |            | Right Tilt    | 1413  | 1732.6      | 25.0          | 23.6  | 0.102           | 0.141  |          |
|              | Bod-worn               | Rel 99 RMC | Off          | 15         | Rear          | 1312  | 1712.4      | 25.0          | 23.7  | 0.753           | 1.011  | 13       |
|              |                        |            |              |            |               | 1413  | 1732.6      | 25.0          | 23.6  | 0.714           | 0.988  |          |
|              |                        |            |              |            |               | 1513  | 1752.6      | 25.0          | 23.5  | 0.690           | 0.984  |          |
|              |                        |            |              |            | Front         | 1413  | 1732.6      | 25.0          | 23.6  | 0.503           | 0.696  |          |
|              | Hotspot                | Rel 99 RMC | On           | 10         | Rear          | 1413  | 1732.6      | 22.0          | 20.6  | 0.578           | 0.798  |          |
|              |                        |            |              |            | Front         | 1413  | 1732.6      | 22.0          | 20.6  | 0.464           | 0.641  |          |
|              |                        |            |              |            | Edge 2        | 1413  | 1732.6      | 22.0          | 20.6  | 0.092           | 0.127  |          |
|              |                        |            |              |            | Edge 3        | 1312  | 1712.4      | 22.0          | 20.7  | 0.861           | 1.159  |          |
|              |                        |            |              |            |               | 1413  | 1732.6      | 22.0          | 20.6  | 0.825           | 1.139  |          |
|              |                        |            |              |            |               | 1513  | 1752.6      | 22.0          | 20.4  | 0.831           | 1.199  | 14       |
|              |                        |            |              |            | Edge 4        | 1413  | 1732.6      | 22.0          | 20.6  | 0.110           | 0.152  |          |
| Antenna      | RF Exposure Conditions | Mode       | PWR Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 10-g SAR (W/kg) |        | Plot No. |
|              |                        |            |              |            |               |       |             | Tune-up limit | Meas. | Meas.           | Scaled |          |
| Main Ant.1-1 | Product Specific 10-g  | Rel 99 RMC | Off          | 7          | Rear          | 1413  | 1732.6      | 25.0          | 23.6  | 1.030           | 1.426  |          |
|              |                        |            |              | 7          | Front         | 1413  | 1732.6      | 25.0          | 23.6  | 0.757           | 1.048  |          |
|              |                        |            |              | 13         | Edge 3        | 1413  | 1732.6      | 25.0          | 23.6  | 0.629           | 0.871  |          |
|              |                        |            | On           | 0          | Rear          | 1312  | 1712.4      | 22.0          | 20.9  | 1.660           | 2.154  |          |
|              |                        |            |              |            |               | 1413  | 1732.6      | 22.0          | 20.8  | 1.540           | 2.049  |          |
|              |                        |            |              |            |               | 1513  | 1752.6      | 22.0          | 20.5  | 1.500           | 2.133  |          |
|              |                        |            |              |            | Front         | 1413  | 1732.6      | 22.0          | 20.8  | 1.020           | 1.357  |          |
|              |                        |            |              |            | Edge 3        | 1312  | 1712.4      | 22.0          | 20.9  | 2.060           | 2.673  | 15       |
|              |                        |            |              |            |               | 1413  | 1732.6      | 22.0          | 20.8  | 1.880           | 2.501  |          |
|              |                        |            |              |            |               | 1513  | 1752.6      | 22.0          | 20.5  | 1.700           | 2.417  |          |

## 10.5 W-CDMA Band V

| Antenna      | RF Exposure Conditions | Mode       | PWR Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg) |        | Plot No. |
|--------------|------------------------|------------|--------------|------------|---------------|-------|-------------|---------------|-------|----------------|--------|----------|
|              |                        |            |              |            |               |       |             | Tune-up limit | Meas. | Meas.          | Scaled |          |
| Main Ant.1-1 | Head                   | Rel 99 RMC | N/A          | 0          | Left Touch    | 4183  | 836.6       | 25.5          | 24.2  | 0.132          | 0.179  |          |
|              |                        |            |              |            | Left Tilt     | 4183  | 836.6       | 25.5          | 24.2  | 0.058          | 0.078  |          |
|              |                        |            |              |            | Right Touch   | 4183  | 836.6       | 25.5          | 24.2  | 0.158          | 0.214  | 16       |
|              |                        |            |              |            | Right Tilt    | 4183  | 836.6       | 25.5          | 24.2  | 0.073          | 0.099  |          |
|              | Body-worn              | Rel 99 RMC | N/A          | 15         | Rear          | 4183  | 836.6       | 25.5          | 24.2  | 0.170          | 0.230  | 17       |
|              |                        |            |              |            | Front         | 4183  | 836.6       | 25.5          | 24.2  | 0.161          | 0.218  |          |
|              | Hotspot                | Rel 99 RMC | N/A          | 10         | Rear          | 4183  | 836.6       | 25.5          | 24.2  | 0.504          | 0.682  | 18       |
|              |                        |            |              |            | Front         | 4183  | 836.6       | 25.5          | 24.2  | 0.244          | 0.330  |          |
|              |                        |            |              |            | Edge 2        | 4183  | 836.6       | 25.5          | 24.2  | 0.209          | 0.283  |          |
|              |                        |            |              |            | Edge 3        | 4183  | 836.6       | 25.5          | 24.2  | 0.195          | 0.264  |          |
|              |                        |            |              |            | Edge 4        | 4183  | 836.6       | 25.5          | 24.2  | 0.136          | 0.184  |          |

## 10.6 LTE Band 12 (10MHz Bandwidth)

| Antenna      | RF Exposure Conditions | Mode | PWR Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | RB Allocation | RB offset | Power (dBm)   |       | 1-g SAR (W/kg) |        | Plot No. |
|--------------|------------------------|------|--------------|------------|---------------|-------|-------------|---------------|-----------|---------------|-------|----------------|--------|----------|
|              |                        |      |              |            |               |       |             |               |           | Tune-up limit | Meas. | Meas.          | Scaled |          |
| Main Ant.1-1 | Head                   | QPSK | N/A          | 0          | Left Touch    | 23095 | 707.5       | 1             | 0         | 25.5          | 24.4  | 0.094          | 0.120  |          |
|              |                        |      |              |            |               |       |             | 25            | 0         | 24.5          | 23.5  | 0.079          | 0.100  |          |
|              |                        |      |              |            | Left Tilt     | 23095 | 707.5       | 1             | 0         | 25.5          | 24.4  | 0.047          | 0.060  |          |
|              |                        |      |              |            |               |       |             | 25            | 0         | 24.5          | 23.5  | 0.038          | 0.049  |          |
|              |                        |      |              |            | Right Touch   | 23095 | 707.5       | 1             | 0         | 25.5          | 24.4  | 0.111          | 0.142  | 19       |
|              |                        |      |              |            |               |       |             | 25            | 0         | 24.5          | 23.5  | 0.091          | 0.115  |          |
|              |                        |      |              |            | Right Tilt    | 23095 | 707.5       | 1             | 0         | 25.5          | 24.4  | 0.057          | 0.072  |          |
|              |                        |      |              |            |               |       |             | 25            | 0         | 24.5          | 23.5  | 0.045          | 0.057  |          |
|              | Body-worn              | QPSK | N/A          | 15         | Rear          | 23095 | 707.5       | 1             | 0         | 25.5          | 24.4  | 0.188          | 0.240  | 20       |
|              |                        |      |              |            |               |       |             | 25            | 0         | 24.5          | 23.5  | 0.153          | 0.194  |          |
|              |                        |      |              |            | Front         | 23095 | 707.5       | 1             | 0         | 25.5          | 24.4  | 0.164          | 0.209  |          |
|              |                        |      |              |            |               |       |             | 25            | 0         | 24.5          | 23.5  | 0.134          | 0.170  |          |
|              | Hotspot                | QPSK | N/A          | 10         | Rear          | 23095 | 707.5       | 1             | 0         | 25.5          | 24.4  | 0.255          | 0.325  | 21       |
|              |                        |      |              |            |               |       |             | 25            | 0         | 24.5          | 23.5  | 0.212          | 0.269  |          |
|              |                        |      |              |            | Front         | 23095 | 707.5       | 1             | 0         | 25.5          | 24.4  | 0.183          | 0.233  |          |
|              |                        |      |              |            |               |       |             | 25            | 0         | 24.5          | 23.5  | 0.149          | 0.189  |          |
|              |                        |      |              |            | Edge 2        | 23095 | 707.5       | 1             | 0         | 25.5          | 24.4  | 0.155          | 0.198  |          |
|              |                        |      |              |            |               |       |             | 25            | 0         | 24.5          | 23.5  | 0.127          | 0.161  |          |
|              |                        |      |              |            | Edge 3        | 23095 | 707.5       | 1             | 0         | 25.5          | 24.4  | 0.097          | 0.124  |          |
|              |                        |      |              |            |               |       |             | 25            | 0         | 24.5          | 23.5  | 0.077          | 0.098  |          |
|              |                        |      |              |            | Edge 4        | 23095 | 707.5       | 1             | 0         | 25.5          | 24.4  | 0.151          | 0.193  |          |
|              |                        |      |              |            |               |       |             | 25            | 0         | 24.5          | 23.5  | 0.122          | 0.155  |          |

**10.7 LTE Band 13 (10MHz Bandwidth)**

| Antenna      | RF Exposure Conditions | Mode | PWR Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | RB Allocation | RB offset | Power (dBm)   |       | 1-g SAR (W/kg) |        | Plot No. |
|--------------|------------------------|------|--------------|------------|---------------|-------|-------------|---------------|-----------|---------------|-------|----------------|--------|----------|
|              |                        |      |              |            |               |       |             |               |           | Tune-up limit | Meas. | Meas.          | Scaled |          |
| Main Ant.1-1 | Head                   | QPSK | N/A          | 0          | Left Touch    | 23230 | 782.0       | 1             | 49        | 25.5          | 23.9  | 0.114          | 0.163  |          |
|              |                        |      |              |            |               |       |             | 25            | 25        | 24.5          | 23.0  | 0.090          | 0.126  |          |
|              |                        |      |              |            | Left Tilt     | 23230 | 782.0       | 1             | 49        | 25.5          | 23.9  | 0.079          | 0.114  |          |
|              |                        |      |              |            |               |       |             | 25            | 25        | 24.5          | 23.0  | 0.060          | 0.084  |          |
|              |                        |      |              |            | Right Touch   | 23230 | 782.0       | 1             | 49        | 25.5          | 23.9  | 0.129          | 0.185  | 22       |
|              |                        |      |              |            |               |       |             | 25            | 25        | 24.5          | 23.0  | 0.108          | 0.151  |          |
|              |                        |      |              |            | Right Tilt    | 23230 | 782.0       | 1             | 49        | 25.5          | 23.9  | 0.067          | 0.095  |          |
|              |                        |      |              |            |               |       |             | 25            | 25        | 24.5          | 23.0  | 0.054          | 0.076  |          |
|              | Body-worn              | QPSK | N/A          | 15         | Rear          | 23230 | 782.0       | 1             | 49        | 25.5          | 23.9  | 0.239          | 0.342  | 23       |
|              |                        |      |              |            |               |       |             | 25            | 25        | 24.5          | 23.0  | 0.191          | 0.268  |          |
|              |                        |      |              |            | Front         | 23230 | 782.0       | 1             | 49        | 25.5          | 23.9  | 0.214          | 0.306  |          |
|              |                        |      |              |            |               |       |             | 25            | 25        | 24.5          | 23.0  | 0.172          | 0.241  |          |
|              | Hotspot                | QPSK | N/A          | 10         | Rear          | 23230 | 782.0       | 1             | 49        | 25.5          | 23.9  | 0.315          | 0.451  | 24       |
|              |                        |      |              |            |               |       |             | 25            | 25        | 24.5          | 23.0  | 0.258          | 0.362  |          |
|              |                        |      |              |            | Front         | 23230 | 782.0       | 1             | 49        | 25.5          | 23.9  | 0.243          | 0.348  |          |
|              |                        |      |              |            |               |       |             | 25            | 25        | 24.5          | 23.0  | 0.195          | 0.273  |          |
|              |                        |      |              |            | Edge 2        | 23230 | 782.0       | 1             | 49        | 25.5          | 23.9  | 0.254          | 0.364  |          |
|              |                        |      |              |            |               |       |             | 25            | 25        | 24.5          | 23.0  | 0.199          | 0.279  |          |
|              |                        |      |              |            | Edge 3        | 23230 | 782.0       | 1             | 49        | 25.5          | 23.9  | 0.180          | 0.258  |          |
|              |                        |      |              |            |               |       |             | 25            | 25        | 24.5          | 23.0  | 0.147          | 0.206  |          |
|              |                        |      |              |            | Edge 4        | 23230 | 782.0       | 1             | 49        | 25.5          | 23.9  | 0.173          | 0.248  |          |
|              |                        |      |              |            |               |       |             | 25            | 25        | 24.5          | 23.0  | 0.137          | 0.192  |          |

## 10.8 LTE Band 25 (20MHz Bandwidth)

| Antenna      | RF Exposure Conditions | Mode                   | PWR Back-off | Dist. (mm)   | Test Position | Ch #.         | Freq. (MHz) | RB Allocation | RB offset     | Power (dBm)   |             | 1-g SAR (W/kg) |                 | Plot No. |          |       |       |    |
|--------------|------------------------|------------------------|--------------|--------------|---------------|---------------|-------------|---------------|---------------|---------------|-------------|----------------|-----------------|----------|----------|-------|-------|----|
|              |                        |                        |              |              |               |               |             |               |               | Tune-up limit | Meas.       | Meas.          | Scaled          |          |          |       |       |    |
| Main Ant.1-1 | Head                   | QPSK                   | Off          | 0            | Left Touch    | 26590         | 1905.0      | 1             | 0             | 24.5          | 23.4        | 0.148          | 0.191           | 25       |          |       |       |    |
|              |                        |                        |              |              |               |               |             | 50            | 0             | 23.5          | 22.4        | 0.109          | 0.142           |          |          |       |       |    |
|              |                        |                        |              |              | Left Tilt     | 26590         | 1905.0      | 1             | 0             | 24.5          | 23.4        | 0.052          | 0.067           |          |          |       |       |    |
|              |                        |                        |              |              |               |               |             | 50            | 0             | 23.5          | 22.4        | 0.036          | 0.047           |          |          |       |       |    |
|              |                        |                        |              |              | Right Touch   | 26590         | 1905.0      | 1             | 0             | 24.5          | 23.4        | 0.100          | 0.129           |          |          |       |       |    |
|              |                        |                        |              |              |               |               |             | 50            | 0             | 23.5          | 22.4        | 0.072          | 0.094           |          |          |       |       |    |
|              |                        |                        |              |              | Right Tilt    | 26590         | 1905.0      | 1             | 0             | 24.5          | 23.4        | 0.084          | 0.109           |          |          |       |       |    |
|              |                        |                        |              |              |               |               |             | 50            | 0             | 23.5          | 22.4        | 0.060          | 0.078           |          |          |       |       |    |
|              |                        |                        |              |              | Body-w orn    | QPSK          | Off         | 15            | Rear          | 26140         | 1860.0      | 1              | 0               | 24.5     | 23.1     | 0.616 | 0.845 |    |
|              |                        |                        |              |              |               |               |             |               |               | 26365         | 1882.5      | 1              | 0               | 24.5     | 22.9     | 0.601 | 0.865 | 26 |
|              | 26590                  | 1905.0                 | 1            | 0            |               |               |             |               |               | 24.5          | 23.4        | 0.645          | 0.833           |          |          |       |       |    |
|              |                        |                        | 50           | 0            |               |               |             |               |               | 23.5          | 22.4        | 0.449          | 0.583           |          |          |       |       |    |
|              | Front                  | 26590                  | 1905.0       | 1            |               |               |             |               | 0             | 24.5          | 23.4        | 0.567          | 0.732           |          |          |       |       |    |
|              |                        |                        |              | 50           |               |               |             |               | 0             | 23.5          | 22.4        | 0.394          | 0.512           |          |          |       |       |    |
|              | Hotspot                | QPSK                   | On           | 10           |               |               |             |               | Rear          | 26590         | 1905.0      | 1              | 0               | 20.5     | 19.2     | 0.483 | 0.648 |    |
|              |                        |                        |              |              |               |               |             |               |               |               |             | 50             | 0               | 20.5     | 19.2     | 0.480 | 0.650 |    |
|              |                        |                        |              |              |               |               |             |               | Front         | 26590         | 1905.0      | 1              | 0               | 20.5     | 19.2     | 0.414 | 0.556 |    |
|              |                        |                        |              |              |               |               |             |               |               |               |             | 50             | 0               | 20.5     | 19.2     | 0.412 | 0.557 |    |
|              |                        |                        |              |              | Edge 2        | 26590         | 1905.0      | 1             | 0             | 20.5          | 19.2        | 0.099          | 0.133           |          |          |       |       |    |
|              |                        |                        |              |              |               |               |             | 50            | 0             | 20.5          | 19.2        | 0.100          | 0.135           |          |          |       |       |    |
|              |                        |                        |              |              | Edge 3        | 26140         | 1860.0      | 1             | 0             | 20.5          | 18.8        | 0.762          | 1.116           |          |          |       |       |    |
|              |                        |                        |              |              |               |               |             | 50            | 0             | 20.5          | 18.8        | 0.767          | 1.138           |          |          |       |       |    |
|              |                        |                        |              |              |               | 26365         | 1882.5      | 1             | 0             | 20.5          | 19.0        | 0.808          | 1.141           |          |          |       |       |    |
|              |                        |                        |              |              |               |               |             | 50            | 0             | 20.5          | 19.0        | 0.812          | 1.151           |          |          |       |       |    |
|              |                        |                        |              |              |               | 26590         | 1905.0      | 1             | 0             | 20.5          | 19.2        | 0.942          | 1.264           |          |          |       |       |    |
|              |                        |                        |              |              |               |               |             | 50            | 0             | 20.5          | 19.2        | 0.958          | 1.296           |          |          |       |       |    |
|              |                        |                        |              |              |               |               |             | 100           | 0             | 20.5          | 19.2        | 0.987          | 1.339           | 27       |          |       |       |    |
|              |                        |                        |              |              | Edge 4        | 26590         | 1905.0      | 1             | 0             | 20.5          | 19.2        | 0.094          | 0.126           |          |          |       |       |    |
|              |                        |                        |              |              |               |               |             | 50            | 0             | 20.5          | 19.2        | 0.096          | 0.129           |          |          |       |       |    |
|              | Antenna                | RF Exposure Conditions | Mode         | PWR Back-off | Dist. (mm)    | Test Position | Ch #.       | Freq. (MHz)   | RB Allocation | RB offset     | Power (dBm) |                | 10-g SAR (W/kg) |          | Plot No. |       |       |    |
|              |                        |                        |              |              |               |               |             |               |               | Tune-up limit | Meas.       | Meas.          | Scaled          |          |          |       |       |    |
| Main Ant.1-1 | Product Specific 10-g  | QPSK                   | Off          | 7            | Rear          | 26590         | 1905.0      | 1             | 0             | 24.5          | 23.4        | 1.090          | 1.408           |          |          |       |       |    |
|              |                        |                        |              |              |               |               |             | 50            | 0             | 23.5          | 22.4        | 0.764          | 0.993           |          |          |       |       |    |
|              |                        |                        |              | 7            | Front         | 26590         | 1905.0      | 1             | 0             | 24.5          | 23.4        | 0.874          | 1.129           |          |          |       |       |    |
|              |                        |                        |              |              |               |               |             | 50            | 0             | 23.5          | 22.4        | 0.618          | 0.803           |          |          |       |       |    |
|              |                        |                        |              | 13           | Edge 3        | 26590         | 1905.0      | 1             | 0             | 24.5          | 23.4        | 0.817          | 1.055           |          |          |       |       |    |
|              |                        |                        |              |              |               |               |             | 50            | 0             | 23.5          | 22.4        | 0.586          | 0.761           |          |          |       |       |    |
|              |                        |                        | On           | 0            | Rear          | 26590         | 1905.0      | 1             | 0             | 20.5          | 19.2        | 1.280          | 1.733           |          |          |       |       |    |
|              |                        |                        |              |              |               |               |             | 50            | 0             | 20.5          | 19.2        | 1.300          | 1.771           |          |          |       |       |    |
|              |                        |                        |              | 0            | Front         | 26590         | 1905.0      | 1             | 0             | 20.5          | 19.2        | 1.250          | 1.692           |          |          |       |       |    |
|              |                        |                        |              |              |               |               |             | 50            | 0             | 20.5          | 19.2        | 1.230          | 1.676           |          |          |       |       |    |
|              |                        |                        |              | Edge 3       | 26590         | 1905.0        | 1           | 0             | 20.5          | 19.2          | 1.460       | 1.976          | 28              |          |          |       |       |    |
|              |                        |                        |              |              |               |               | 50          | 0             | 20.5          | 19.2          | 1.450       | 1.976          |                 |          |          |       |       |    |

**10.9 LTE Band 26 (15MHz Bandwidth)**

| Antenna      | RF Exposure Conditions | Mode | PWR Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | RB Allocation | RB offset | Power (dBm)   |       | 1-g SAR (W/kg) |        | Plot No. |
|--------------|------------------------|------|--------------|------------|---------------|-------|-------------|---------------|-----------|---------------|-------|----------------|--------|----------|
|              |                        |      |              |            |               |       |             |               |           | Tune-up limit | Meas. | Meas.          | Scaled |          |
| Main Ant.1-1 | Head                   | QPSK | N/A          | 0          | Left Touch    | 26865 | 831.5       | 1             | 0         | 25.5          | 23.9  | 0.166          | 0.242  |          |
|              |                        |      |              |            |               |       |             | 36            | 0         | 22.5          | 21.3  | 0.089          | 0.116  |          |
|              |                        |      |              |            | Left Tilt     | 26865 | 831.5       | 1             | 0         | 25.5          | 23.9  | 0.105          | 0.153  |          |
|              |                        |      |              |            |               |       |             | 36            | 0         | 22.5          | 21.3  | 0.053          | 0.070  |          |
|              |                        |      |              |            | Right Touch   | 26865 | 831.5       | 1             | 0         | 25.5          | 23.9  | 0.256          | 0.373  | 29       |
|              |                        |      |              |            |               |       |             | 36            | 0         | 22.5          | 21.3  | 0.134          | 0.175  |          |
|              |                        |      |              |            | Right Tilt    | 26865 | 831.5       | 1             | 0         | 25.5          | 23.9  | 0.105          | 0.153  |          |
|              |                        |      |              |            |               |       |             | 36            | 0         | 22.5          | 21.3  | 0.053          | 0.069  |          |
|              | Body-worn              | QPSK | N/A          | 15         | Rear          | 26865 | 831.5       | 1             | 0         | 25.5          | 23.9  | 0.363          | 0.530  | 30       |
|              |                        |      |              |            |               |       |             | 36            | 0         | 22.5          | 21.3  | 0.200          | 0.262  |          |
|              |                        |      |              |            | Front         | 26865 | 831.5       | 1             | 0         | 25.5          | 23.9  | 0.324          | 0.473  |          |
|              |                        |      |              |            |               |       |             | 36            | 0         | 22.5          | 21.3  | 0.175          | 0.229  |          |
|              | Hotspot                | QPSK | N/A          | 10         | Rear          | 26865 | 831.5       | 1             | 0         | 25.5          | 23.9  | 0.552          | 0.805  | 31       |
|              |                        |      |              |            |               |       |             | 36            | 0         | 22.5          | 21.3  | 0.310          | 0.406  |          |
|              |                        |      |              |            | Front         | 26865 | 831.5       | 1             | 0         | 25.5          | 23.9  | 0.456          | 0.665  |          |
|              |                        |      |              |            |               |       |             | 36            | 0         | 22.5          | 21.3  | 0.248          | 0.325  |          |
|              |                        |      |              |            | Edge 2        | 26865 | 831.5       | 1             | 0         | 25.5          | 23.9  | 0.345          | 0.503  |          |
|              |                        |      |              |            |               |       |             | 36            | 0         | 22.5          | 21.3  | 0.178          | 0.233  |          |
|              |                        |      |              |            | Edge 3        | 26865 | 831.5       | 1             | 0         | 25.5          | 23.9  | 0.330          | 0.481  |          |
|              |                        |      |              |            |               |       |             | 36            | 0         | 22.5          | 21.3  | 0.184          | 0.241  |          |
|              |                        |      |              |            | Edge 4        | 26865 | 831.5       | 1             | 0         | 25.5          | 23.9  | 0.141          | 0.206  |          |
|              |                        |      |              |            |               |       |             | 36            | 0         | 22.5          | 21.3  | 0.078          | 0.102  |          |

**10.10 LTE Band 41 (20MHz Bandwidth)****LTE Band 41 Power Class 3 SAR measured Results**

| Antenna      | RF Exposure Conditions | Mode | PWR Back-off | Dist. (mm) | Test Position | Ch #.  | Freq. (MHz) | RB Allocation | RB offset | Power (dBm)   |       | 1-g SAR (W/kg) |        | Plot No. |
|--------------|------------------------|------|--------------|------------|---------------|--------|-------------|---------------|-----------|---------------|-------|----------------|--------|----------|
|              |                        |      |              |            |               |        |             |               |           | Tune-up limit | Meas. | Meas.          | Scaled |          |
| Main Ant.1-2 | Head                   | QPSK | N/A          | 0          | Left Touch    | 39750  | 2506.0      | 1             | 0         | 23.5          | 21.9  | 0.044          | 0.064  |          |
|              |                        |      |              |            |               |        |             | 50            | 0         | 22.5          | 20.8  | 0.033          | 0.049  |          |
|              |                        |      |              |            | Left Tilt     | 39750  | 2506.0      | 1             | 0         | 23.5          | 21.9  | 0.019          | 0.028  |          |
|              |                        |      |              |            |               |        |             | 50            | 0         | 22.5          | 20.8  | 0.015          | 0.023  |          |
|              |                        |      |              |            | Right Touch   | 39750  | 2506.0      | 1             | 0         | 23.5          | 21.9  | 0.036          | 0.052  |          |
|              |                        |      |              |            |               |        |             | 50            | 0         | 22.5          | 20.8  | 0.027          | 0.040  |          |
|              |                        |      |              |            | Right Tilt    | 39750  | 2506.0      | 1             | 0         | 23.5          | 21.9  | 0.036          | 0.052  |          |
|              |                        |      |              |            |               |        |             | 50            | 0         | 22.5          | 20.8  | 0.027          | 0.040  |          |
|              | Body-worn              | QPSK | N/A          | 15         | Rear          | 39750  | 2506.0      | 1             | 0         | 23.5          | 21.9  | 0.153          | 0.223  |          |
|              |                        |      |              |            |               |        |             | 50            | 0         | 22.5          | 20.8  | 0.122          | 0.181  |          |
|              |                        |      |              |            | Front         | 39750  | 2506.0      | 1             | 0         | 23.5          | 21.9  | 0.135          | 0.197  |          |
|              |                        |      |              |            |               |        |             | 50            | 0         | 22.5          | 20.8  | 0.108          | 0.160  |          |
|              | Hotspot                | QPSK | N/A          | 10         | Rear          | 39750  | 2506.0      | 1             | 0         | 23.5          | 21.9  | 0.327          | 0.477  |          |
|              |                        |      |              |            |               |        |             | 50            | 0         | 22.5          | 20.8  | 0.263          | 0.391  |          |
|              |                        |      |              |            | Front         | 39750  | 2506.0      | 1             | 0         | 23.5          | 21.9  | 0.263          | 0.384  |          |
|              |                        |      |              |            |               |        |             | 50            | 0         | 22.5          | 20.8  | 0.218          | 0.324  |          |
|              |                        |      |              |            | Edge 3        | 39750  | 2506.0      | 1             | 0         | 23.5          | 21.9  | 0.589          | 0.860  |          |
|              |                        |      |              |            |               |        |             | 50            | 0         | 22.5          | 20.8  | 0.475          | 0.706  |          |
|              |                        |      |              |            |               |        |             | 100           | 0         | 22.5          | 20.8  | 0.462          | 0.687  |          |
|              |                        |      |              |            |               | 40185  | 2549.5      | 1             | 0         | 23.5          | 21.6  | 0.556          | 0.869  |          |
|              |                        |      |              |            |               |        |             | 50            | 50        | 22.5          | 20.6  | 0.441          | 0.689  |          |
|              |                        |      |              |            |               | 40620  | 2593.0      | 1             | 0         | 23.5          | 21.6  | 0.569          | 0.891  |          |
|              |                        |      |              |            |               |        |             | 50            | 50        | 22.5          | 20.6  | 0.454          | 0.703  |          |
|              |                        |      |              |            |               | 41055  | 2636.5      | 1             | 0         | 23.5          | 21.6  | 0.562          | 0.863  |          |
|              |                        |      |              |            |               |        |             | 50            | 0         | 22.5          | 20.5  | 0.439          | 0.689  |          |
|              |                        |      |              |            | 41490         | 2680.0 | 2506.0      | 1             | 0         | 23.5          | 21.6  | 0.608          | 0.947  | 34       |
|              |                        |      |              |            |               |        |             | 50            | 0         | 22.5          | 20.5  | 0.474          | 0.743  |          |
|              |                        |      |              |            | Edge 4        | 39750  | 2506.0      | 1             | 0         | 23.5          | 21.9  | 0.228          | 0.333  |          |
|              |                        |      |              |            |               |        |             | 50            | 0         | 22.5          | 20.8  | 0.178          | 0.264  |          |

**LTE Band 41 (20MHz Bandwidth) (Continued)****LTE Band 41 Power Class 2 SAR measured Results**

| Antenna      | RF Exposure Conditions | Mode | PWR Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | RB Allocation | RB offset | Power (dBm)   |       | 1-g SAR (W/kg) |        | Plot No. |
|--------------|------------------------|------|--------------|------------|---------------|-------|-------------|---------------|-----------|---------------|-------|----------------|--------|----------|
|              |                        |      |              |            |               |       |             |               |           | Tune-up limit | Meas. | Meas.          | Scaled |          |
| Main Ant.1-2 | Head                   | QPSK | Off          | 0          | Left Touch    | 39750 | 2506.0      | 1             | 0         | 26.5          | 24.9  | 0.058          | 0.084  | 32       |
|              | Body-worn              | QPSK | Off          | 15         | Rear          | 39750 | 2506.0      | 1             | 0         | 26.5          | 24.9  | 0.199          | 0.286  | 33       |
|              | Hotspot                | QPSK | On           | 10         | Edge 3        | 40185 | 2549.5      | 1             | 0         | 23.5          | 21.6  | 0.329          | 0.510  |          |

From May 2017 TCB Workshop, SAR tested were performed using Power Class 3. SAR test for 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 average power for UL-DL configurations, configuration # 1 with duty cycle 43.3% is used for Power Class 2 SAR test.

Additional SAR testing for Power Class 2 is not required when;

- The reported SAR vs. output power can be linearly scaled with < 10% discrepancy between power classes and all reported SAR are < 1.4 W/kg

**Reported SAR vs. Output Power linearly scaled**

| Antenna      | RF Exposure Conditions | Power Class 2  |                     |                       |                     | Power Class 3  |                     |                       |                     | PC 2 linearly Scaled Reported SAR (W/kg) | Linearly scaled (%) |
|--------------|------------------------|----------------|---------------------|-----------------------|---------------------|----------------|---------------------|-----------------------|---------------------|------------------------------------------|---------------------|
|              |                        | Duty Cycle (%) | Tune-up Power (dBm) | Frame Avg. Power (mW) | Reported SAR (W/kg) | Duty Cycle (%) | Tune-up Power (dBm) | Frame Avg. Power (mW) | Reported SAR (W/kg) |                                          |                     |
| Main Ant.1-2 | Head                   | 43.3           | 26.5                | 193.4                 | 0.084               | 63.3           | 23.5                | 141.7                 | 0.064               | 0.062                                    | -3.8                |
|              | Body-worn              | 43.3           | 26.5                | 193.4                 | 0.286               | 63.3           | 23.5                | 141.7                 | 0.223               | 0.210                                    | -6.0                |
|              | Hotspot                | 43.3           | 23.5                | 96.9                  | 0.510               | 63.3           | 23.5                | 141.7                 | 0.947               | 0.746                                    | -21.3               |

**Conclusion:**

Simultaneous SAR test for Power Class 2 is not required base on the reported SAR < 1.4 W/kg and reported SAR vs. output power linearly scaled < 10%.

## 10.11 LTE Band 66 (20MHz Bandwidth)

| Antenna      | RF Exposure Conditions | Mode   | PWR Back-off | Dist. (mm) | Test Position | Ch #.  | Freq. (MHz) | RB Allocation | RB offset | Pow er (dBm)  |       | 1-g SAR (W/kg)  |        | Plot No. |       |       |
|--------------|------------------------|--------|--------------|------------|---------------|--------|-------------|---------------|-----------|---------------|-------|-----------------|--------|----------|-------|-------|
|              |                        |        |              |            |               |        |             |               |           | Tune-up limit | Meas. | Meas.           | Scaled |          |       |       |
| Main Ant.1-1 | Head                   | QPSK   | Off          | 0          | Left Touch    | 132322 | 1745.0      | 1             | 0         | 24.5          | 23.1  | 0.207           | 0.289  | 35       |       |       |
|              |                        |        |              |            |               |        |             | 50            | 0         | 23.5          | 22.1  | 0.156           | 0.217  |          |       |       |
|              |                        |        |              |            | Left Tilt     | 132322 | 1745.0      | 1             | 0         | 24.5          | 23.1  | 0.059           | 0.082  |          |       |       |
|              |                        |        |              |            |               |        |             | 50            | 0         | 23.5          | 22.1  | 0.047           | 0.065  |          |       |       |
|              |                        |        |              |            | Right Touch   | 132322 | 1745.0      | 1             | 0         | 24.5          | 23.1  | 0.149           | 0.208  |          |       |       |
|              |                        |        |              |            |               |        |             | 50            | 0         | 23.5          | 22.1  | 0.118           | 0.164  |          |       |       |
|              |                        |        |              |            | Right Tilt    | 132322 | 1745.0      | 1             | 0         | 24.5          | 23.1  | 0.049           | 0.069  |          |       |       |
|              |                        |        |              |            |               |        |             | 50            | 0         | 23.5          | 22.1  | 0.040           | 0.056  |          |       |       |
|              | Body-w orn             | QPSK   | Off          | 15         | Rear          | 132072 | 1720.0      | 1             | 0         | 24.5          | 22.7  | 0.614           | 0.935  |          |       |       |
|              |                        |        |              |            |               |        |             | 132322        | 1745.0    | 1             | 0     | 24.5            | 23.1   | 0.643    | 0.898 |       |
|              |                        |        |              |            |               |        |             | 50            |           | 0             | 23.5  | 22.1            | 0.508  | 0.707    |       |       |
|              |                        |        |              |            | Front         | 132072 | 1720.0      | 1             | 0         | 24.5          | 22.8  | 0.681           | 0.997  | 36       |       |       |
|              |                        |        |              |            |               |        |             | 132322        | 1745.0    | 1             | 0     | 24.5            | 23.1   | 0.601    | 0.839 |       |
|              |                        |        |              |            |               |        |             | 50            |           | 0             | 23.5  | 22.1            | 0.477  | 0.664    |       |       |
|              |                        |        |              |            |               |        |             | 132572        |           | 1770.0        | 1     | 0               | 24.5   | 22.8     | 0.555 | 0.812 |
|              |                        |        |              |            |               |        |             | Hotspot       | QPSK      | On            | 10    | Rear            | 132322 | 1745.0   | 1     | 0     |
|              | 50                     | 0      | 21.5         | 20.3       | 0.538         | 0.712  |             |               |           |               |       |                 |        |          |       |       |
|              | Front                  | 132322 | 1745.0       | 1          | 0             | 21.5   | 20.3        |               |           |               |       | 0.478           | 0.626  |          |       |       |
|              |                        |        |              | 50         | 0             | 21.5   | 20.3        |               |           |               |       | 0.474           | 0.627  |          |       |       |
|              | Edge 2                 | 132322 | 1745.0       | 1          | 0             | 21.5   | 20.3        |               |           |               |       | 0.112           | 0.147  |          |       |       |
|              |                        |        |              | 50         | 0             | 21.5   | 20.3        |               |           |               |       | 0.109           | 0.144  |          |       |       |
|              | Edge 3                 | 132072 | 1720.0       | 1          | 0             | 21.5   | 20.1        |               |           |               |       | 0.814           | 1.131  |          |       |       |
|              |                        |        |              | 50         | 0             | 21.5   | 20.1        |               |           |               |       | 0.811           | 1.126  |          |       |       |
|              |                        |        |              | 132322     | 1745.0        | 1      | 0           |               |           |               |       | 21.5            | 20.3   | 0.914    | 1.197 | 37    |
|              |                        |        |              | 50         |               | 0      | 21.5        |               |           |               |       | 20.3            | 0.901  | 1.192    |       |       |
|              |                        |        |              | 100        |               | 0      | 21.5        |               |           |               |       | 20.3            | 0.891  | 1.179    |       |       |
|              |                        |        |              | 132572     | 1770.0        | 1      | 0           |               |           |               |       | 21.5            | 20.2   | 0.834    | 1.127 |       |
|              | 50                     | 0      | 21.5         | 20.1       |               | 0.821  | 1.126       |               |           |               |       |                 |        |          |       |       |
|              | Edge 4                 | 132322 | 1745.0       | 1          | 0             | 21.5   | 20.3        |               |           |               |       | 0.261           | 0.342  |          |       |       |
|              |                        |        |              | 50         | 0             | 21.5   | 20.3        | 0.257         | 0.340     |               |       |                 |        |          |       |       |
| Antenna      | RF Exposure Conditions | Mode   | PWR Back-off | Dist. (mm) | Test Position | Ch #.  | Freq. (MHz) | RB Allocation | RB offset | Pow er (dBm)  |       | 10-g SAR (W/kg) |        | Plot No. |       |       |
|              |                        |        |              |            |               |        |             |               |           | Tune-up limit | Meas. | Meas.           | Scaled |          |       |       |
| Main Ant.1-1 | Product Specific 10-g  | QPSK   | Off          |            | 7             | Rear   | 132322      | 1745.0        | 1         | 0             | 24.5  | 23.1            | 1.010  | 1.410    |       |       |
|              |                        |        |              |            |               |        |             |               | 50        | 0             | 23.5  | 22.1            | 0.806  | 1.122    |       |       |
|              |                        |        |              |            | 7             | Front  | 132322      | 1745.0        | 1         | 0             | 24.5  | 23.1            | 0.896  | 1.251    |       |       |
|              |                        |        |              |            |               |        |             |               | 50        | 0             | 23.5  | 22.1            | 0.709  | 0.987    |       |       |
|              |                        |        |              |            | 13            | Edge 3 | 132322      | 1745.0        | 1         | 0             | 24.5  | 23.1            | 0.771  | 1.076    |       |       |
|              |                        |        |              |            |               |        |             |               | 50        | 0             | 23.5  | 22.1            | 0.611  | 0.851    |       |       |
|              |                        |        | On           | 0          | Rear          | 132322 | 1745.0      | 1             | 0         | 21.5          | 20.4  | 1.440           | 1.870  |          |       |       |
|              |                        |        |              |            |               |        |             | 50            | 0         | 21.5          | 20.3  | 1.430           | 1.895  |          |       |       |
|              |                        |        |              |            | Front         | 132322 | 1745.0      | 1             | 0         | 21.5          | 20.4  | 1.520           | 1.974  |          |       |       |
|              |                        |        |              |            |               |        |             | 50            | 0         | 21.5          | 20.3  | 1.500           | 1.988  |          |       |       |
|              |                        |        |              |            | Edge 3        | 132072 | 1720.0      | 1             | 0         | 21.5          | 20.1  | 1.850           | 2.532  |          |       |       |
|              |                        |        |              |            |               |        |             | 50            | 0         | 21.5          | 20.1  | 1.840           | 2.548  |          |       |       |
|              |                        |        |              |            |               |        |             | 132322        | 1745.0    | 1             | 0     | 21.5            | 20.4   | 1.970    | 2.558 | 38    |
|              |                        |        |              |            |               |        |             | 50            |           | 0             | 21.5  | 20.3            | 1.900  | 2.518    |       |       |
|              |                        |        |              |            |               |        |             | 100           |           | 0             | 21.5  | 20.3            | 1.850  | 2.444    |       |       |
|              |                        |        |              |            |               |        |             | 132572        | 1770.0    | 1             | 0     | 21.5            | 20.2   | 1.610    | 2.167 |       |
|              |                        |        |              |            | 50            | 0      | 21.5        | 20.1          |           | 1.600         | 2.187 |                 |        |          |       |       |

## 10.12 Wi-Fi (DTS Band)

| Antenna            | Frequency Band | Mode           | RF Exposure Conditions | PWR Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Area Scan Max. SAR (W/kg) | Duty Cycle (%) | Power (dBm)   |       | 1-g SAR (W/kg) |        | Note | Plot No. |
|--------------------|----------------|----------------|------------------------|--------------|------------|---------------|-------|-------------|---------------------------|----------------|---------------|-------|----------------|--------|------|----------|
|                    |                |                |                        |              |            |               |       |             |                           |                | Tune-up limit | Meas. | Meas.          | Scaled |      |          |
| SISO (Wi-Fi Ant.1) | 2.4 GHz        | 802.11b 1 Mbps | Head                   | On           | 0          | Left Touch    | 6     | 2437.0      | 0.232                     | 99.7           | 16.0          | 15.5  |                |        |      |          |
|                    |                |                |                        |              |            | Left Tilt     | 6     | 2437.0      | 0.356                     | 99.7           | 16.0          | 15.5  |                |        |      |          |
|                    |                |                |                        |              |            | Right Touch   | 6     | 2437.0      | 0.665                     | 99.7           | 16.0          | 15.5  | 0.459          | 0.519  | 2    |          |
|                    |                |                |                        |              |            | Right Tilt    | 6     | 2437.0      | 0.673                     | 99.7           | 16.0          | 15.5  | 0.553          | 0.625  |      | 39       |
|                    |                |                | Body-worn              | Off          | 15         | Rear          | 6     | 2437.0      | 0.112                     | 99.7           | 19.0          | 18.5  | 0.087          | 0.099  | 1    | 40       |
|                    |                |                |                        |              |            | Front         | 6     | 2437.0      | 0.061                     | 99.7           | 19.0          | 18.5  |                |        |      |          |
|                    |                |                |                        |              |            | Rear          | 6     | 2437.0      | 0.213                     | 99.7           | 19.0          | 18.5  |                |        |      |          |
|                    |                |                |                        |              |            | Front         | 6     | 2437.0      | 0.121                     | 99.7           | 19.0          | 18.5  |                |        |      |          |
|                    |                |                | Hotspot                | Off          | 10         | Edge 1        | 6     | 2437.0      | 0.397                     | 99.7           | 19.0          | 18.5  | 0.312          | 0.353  | 1    | 41       |
|                    |                |                |                        |              |            | Edge 4        | 6     | 2437.0      | 0.076                     | 99.7           | 19.0          | 18.5  |                |        |      |          |
| SISO (Wi-Fi Ant.2) | 2.4 GHz        | 802.11b 1 Mbps | Head                   | On           | 0          | Left Touch    | 11    | 2462.0      | 0.017                     | 99.7           | 16.0          | 15.6  |                |        |      |          |
|                    |                |                |                        |              |            | Left Tilt     | 11    | 2462.0      | 0.024                     | 99.7           | 16.0          | 15.6  |                |        |      |          |
|                    |                |                |                        |              |            | Right Touch   | 11    | 2462.0      | 0.042                     | 99.7           | 16.0          | 15.6  | 0.036          | 0.040  | 1    |          |
|                    |                |                |                        |              |            | Right Tilt    | 11    | 2462.0      | 0.020                     | 99.7           | 16.0          | 15.6  |                |        |      |          |
|                    |                |                | Body-worn              | Off          | 15         | Rear          | 6     | 2437.0      | 0.089                     | 99.7           | 19.0          | 18.7  | 0.069          | 0.074  | 1    |          |
|                    |                |                |                        |              |            | Front         | 6     | 2437.0      | 0.010                     | 99.7           | 19.0          | 18.7  |                |        |      |          |
|                    |                |                |                        |              |            | Rear          | 6     | 2437.0      | 0.399                     | 99.7           | 19.0          | 18.7  | 0.264          | 0.284  | 1    |          |
|                    |                |                |                        |              |            | Front         | 6     | 2437.0      | 0.016                     | 99.7           | 19.0          | 18.7  |                |        |      |          |
|                    |                |                | Hotspot                | Off          | 10         | Edge 1        | 6     | 2437.0      | 0.055                     | 99.7           | 19.0          | 18.7  |                |        |      |          |
|                    |                |                |                        |              |            | Edge 4        | 6     | 2437.0      | 0.100                     | 99.7           | 19.0          | 18.7  |                |        |      |          |

### DTS RSDB mode

| Antenna            | Frequency Band | Mode           | RF Exposure Conditions | PWR Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Area Scan Max. SAR (W/kg) | Duty Cycle (%) | Power (dBm)   |       | 1-g SAR (W/kg) |        | Note | Plot No. |
|--------------------|----------------|----------------|------------------------|--------------|------------|---------------|-------|-------------|---------------------------|----------------|---------------|-------|----------------|--------|------|----------|
|                    |                |                |                        |              |            |               |       |             |                           |                | Tune-up limit | Meas. | Meas.          | Scaled |      |          |
| MIMO (Wi-Fi Ant.1) | 2.4 GHz        | 802.11g 6 Mbps | Body-worn              | Off          | 15         | Rear          | 6     | 2437.0      | 0.080                     | 98.2           | 16.0          | 14.8  | 0.061          | 0.082  | 1    |          |
|                    |                |                |                        |              |            | Front         | 6     | 2437.0      | 0.039                     | 98.2           | 16.0          | 14.8  |                |        |      |          |
| MIMO (Wi-Fi Ant.2) |                |                |                        |              |            | Rear          | 6     | 2437.0      | 0.080                     | 98.2           | 16.0          | 15.3  | 0.068          | 0.081  | 1    |          |
|                    |                |                |                        |              |            | Front         | 6     | 2437.0      | 0.039                     | 98.2           | 16.0          | 15.3  |                |        |      |          |
| MIMO (Wi-Fi Ant.1) | 2.4 GHz        | 802.11g 6 Mbps | Hotspot                | Off          | 10         | Rear          | 6     | 2437.0      | 0.227                     | 98.2           | 16.0          | 14.8  | 0.124          | 0.166  | 1    |          |
|                    |                |                |                        |              |            | Front         | 6     | 2437.0      | 0.073                     | 98.2           | 16.0          | 14.8  |                |        |      |          |
|                    |                |                |                        |              |            | Edge 1        | 6     | 2437.0      | 0.167                     | 98.2           | 16.0          | 14.8  |                |        |      |          |
|                    |                |                |                        |              |            | Edge 4        | 6     | 2437.0      | 0.068                     | 98.2           | 16.0          | 14.8  |                |        |      |          |
|                    |                |                |                        |              |            | Rear          | 6     | 2437.0      | 0.227                     | 98.2           | 16.0          | 15.3  | 0.168          | 0.200  | 1    | 42       |
|                    |                |                |                        |              |            | Front         | 6     | 2437.0      | 0.073                     | 98.2           | 16.0          | 15.3  |                |        |      |          |
|                    |                |                |                        |              |            | Edge 1        | 6     | 2437.0      | 0.167                     | 98.2           | 16.0          | 15.3  |                |        |      |          |
|                    |                |                |                        |              |            | Edge 4        | 6     | 2437.0      | 0.068                     | 98.2           | 16.0          | 15.3  |                |        |      |          |
| SISO (Wi-Fi Ant.1) | 2.4 GHz        | 802.11b 1 Mbps | Body-worn              | Off          | 15         | Rear          | 6     | 2437.0      | 0.060                     | 99.7           | 16.0          | 15.5  | 0.046          | 0.052  |      |          |
|                    |                |                | Hotspot                | Off          | 10         | Rear          | 6     | 2437.0      | 0.124                     | 99.7           | 16.0          | 15.5  | 0.094          | 0.106  |      |          |
| SISO (Wi-Fi Ant.2) | 2.4 GHz        | 802.11b 1 Mbps | Body-worn              | Off          | 15         | Rear          | 11    | 2462.0      | 0.048                     | 99.7           | 16.0          | 15.6  | 0.040          | 0.044  |      |          |
|                    |                |                | Hotspot                | Off          | 10         | Rear          | 11    | 2462.0      | 0.119                     | 99.7           | 16.0          | 15.6  | 0.122          | 0.135  |      |          |

### Note(s):

- When the Highest reported SAR is  $\leq 0.4$  or  $1.0$  W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
- Highest reported SAR is  $> 0.4$  or  $1.0$  W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR  $\leq 0.8$  or  $2.0$  W/kg (1-g or 10-g respectively) was reported.
- Testing for a second channel was required because the reported SAR for this test position was  $> 0.8$  or  $2.0$  W/kg (1-g or 10-g respectively).
- Additional testing required in order satisfying FCC simultaneous transmission limit criteria.
- SAR testing is not required for OFDM mode(s) 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.
- RSDB SAR test evaluated for determining simultaneous transmission SAR test exclusion of WWAN+RSDB scenarios.  
For only Head exposure condition, Normal SAR values were considered for determining simultaneous transmission SAR test exclusion of WWAN+RSDB scenarios.

## 10.13 Wi-Fi (U-NII Bands)

### U-NII 2A Results

| Antenna                  | Frequency Band   | Mode                      | RF Exposure Conditions | PWR Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Area Scan Max. SAR (W/kg) | Duty Cycle (%) | Power (dBm)   |       | 1-g SAR (W/kg) |        | 10-g SAR (W/kg) |        | Note | Plot No. |
|--------------------------|------------------|---------------------------|------------------------|--------------|------------|---------------|-------|-------------|---------------------------|----------------|---------------|-------|----------------|--------|-----------------|--------|------|----------|
|                          |                  |                           |                        |              |            |               |       |             |                           |                | Tune-up limit | Meas. | Meas.          | Scaled | Meas.           | Scaled |      |          |
| SISO (Wi-Fi Ant.1)       | 5.3 GHz U-NII 2A | 802.11ac VHT 80 29.3 Mbps | Head                   | On           | 0          | Left Touch    | 58    | 5290.0      | 0.038                     | 98.1           | 13.0          | 11.8  |                |        |                 |        |      |          |
|                          |                  |                           |                        |              |            | Left Tilt     | 58    | 5290.0      | 0.036                     | 98.1           | 13.0          | 11.8  |                |        |                 |        |      |          |
|                          |                  |                           |                        |              |            | Right Touch   | 58    | 5290.0      | 0.073                     | 98.1           | 13.0          | 11.8  | 0.025          | 0.034  |                 |        | 1    | 43       |
|                          |                  |                           |                        |              |            | Right Tilt    | 58    | 5290.0      | 0.026                     | 98.1           | 13.0          | 11.8  |                |        |                 |        |      |          |
|                          | 5.3 GHz U-NII 2A | 802.11a 6 Mbps            | Body-worn              | Off          | 15         | Rear          | 52    | 5260.0      | 0.379                     | 98.2           | 17.0          | 16.0  | 0.179          | 0.232  |                 |        | 1    | 44       |
|                          |                  |                           |                        |              |            | Front         | 52    | 5260.0      | 0.018                     | 98.2           | 17.0          | 16.0  |                |        |                 |        |      |          |
|                          |                  | Product Specific 10-g     | Off                    | 0            | 0          | Rear          | 52    | 5260.0      | 11.124                    | 98.2           | 17.0          | 16.0  |                |        | 0.704           | 0.913  | 1    | 45       |
|                          |                  |                           |                        |              |            | Front         | 52    | 5260.0      | 0.188                     | 98.2           | 17.0          | 16.0  |                |        |                 |        |      |          |
|                          |                  |                           |                        |              |            | Edge 1        | 52    | 5260.0      | 0.819                     | 98.2           | 17.0          | 16.0  |                |        |                 |        |      |          |
|                          |                  |                           |                        |              |            | Edge 4        | 52    | 5260.0      | 1.214                     | 98.2           | 17.0          | 16.0  |                |        |                 |        |      |          |
| SISO (Wi-Fi Ant.2)       | 5.3 GHz U-NII 2A | 802.11ac VHT 80 29.3 Mbps | Head                   | On           | 0          | Left Touch    | 58    | 5290.0      | 0.022                     | 98.1           | 13.0          | 12.3  |                |        |                 |        |      |          |
|                          |                  |                           |                        |              |            | Left Tilt     | 58    | 5290.0      | 0.023                     | 98.1           | 13.0          | 12.3  |                |        |                 |        |      |          |
|                          |                  |                           |                        |              |            | Right Touch   | 58    | 5290.0      | 0.039                     | 98.1           | 13.0          | 12.3  |                |        |                 |        |      |          |
|                          |                  |                           |                        |              |            | Right Tilt    | 58    | 5290.0      | 0.047                     | 98.1           | 13.0          | 12.3  | 0.019          | 0.023  |                 |        | 1    |          |
|                          | 5.3 GHz U-NII 2A | 802.11a 6 Mbps            | Body-worn              | Off          | 15         | Rear          | 64    | 5320.0      | 0.169                     | 98.2           | 17.0          | 16.4  | 0.020          | 0.023  |                 |        | 1    |          |
|                          |                  |                           |                        |              |            | Front         | 64    | 5320.0      | 0.021                     | 98.2           | 17.0          | 16.4  |                |        |                 |        |      |          |
|                          |                  | Product Specific 10-g     | Off                    | 0            | 0          | Rear          | 64    | 5320.0      | 3.253                     | 98.2           | 17.0          | 16.4  |                |        | 0.423           | 0.499  | 1    |          |
|                          |                  |                           |                        |              |            | Front         | 64    | 5320.0      | 0.242                     | 98.2           | 17.0          | 16.4  |                |        |                 |        |      |          |
|                          |                  |                           |                        |              |            | Edge 1        | 64    | 5320.0      | 0.911                     | 98.2           | 17.0          | 16.4  |                |        |                 |        |      |          |
|                          |                  |                           |                        |              |            | Edge 4        | 64    | 5320.0      | 1.497                     | 98.2           | 17.0          | 16.4  |                |        |                 |        |      |          |
| MIMO (Wi-Fi Ant.1+Ant.2) | 5.3 GHz U-NII 2A | 802.11a 6 Mbps            | Body-worn              | Off          | 15         | Rear          | 56    | 5280.0      | 0.840                     | 98.2           | 17.0          | 16.8  | 0.415          | 0.447  |                 |        | 5    |          |
|                          |                  |                           |                        |              |            | Front         | 56    | 5280.0      | 0.058                     | 98.2           | 17.0          | 16.8  | 0.024          | 0.026  |                 |        | 2, 5 |          |

### U-NII 2A RSDB mode

| Antenna              | Frequency Band   | Mode           | RF Exposure Conditions | PWR Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Area Scan Max. SAR (W/kg) | Duty Cycle (%) | Power (dBm)   |       | 1-g SAR (W/kg) |        | Note | Plot No. |
|----------------------|------------------|----------------|------------------------|--------------|------------|---------------|-------|-------------|---------------------------|----------------|---------------|-------|----------------|--------|------|----------|
|                      |                  |                |                        |              |            |               |       |             |                           |                | Tune-up limit | Meas. | Meas.          | Scaled |      |          |
| MIMO (Wi-Fi Ant.1+2) | 5.3 GHz U-NII 2A | 802.11ac VHT80 | Body-worn              | Off          | 15         | Rear          | 58    | 5290.0      | 0.310                     | 98.0           | 14.0          | 13.8  | 0.141          | 0.152  | 1, 5 | 46       |
|                      |                  |                |                        |              |            | Front         | 58    | 5290.0      | 0.015                     | 98.0           | 14.0          | 13.8  |                |        |      |          |
| SISO (Wi-Fi Ant.1)   | 5.3 GHz U-NII 2A | 802.11ac VHT80 | Body-worn              | Off          | 15         | Rear          | 58    | 5290.0      | 0.181                     | 98.1           | 14.0          | 12.9  | 0.081          | 0.107  |      |          |
| SISO (Wi-Fi Ant.2)   | 5.3 GHz U-NII 2A | 802.11ac VHT80 | Body-worn              | Off          | 15         | Rear          | 58    | 5290.0      | 0.163                     | 98.1           | 14.0          | 13.4  | 0.063          | 0.073  |      |          |

### Note(s):

- When the Highest reported SAR is  $\leq 0.4$  or  $1.0$  W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
- Highest reported SAR is  $> 0.4$  or  $1.0$  W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR  $\leq 0.8$  or  $2.0$  W/kg (1-g or 10-g respectively) was reported.
- Testing for a second channel was required because the reported SAR for this test position was  $> 0.8$  or  $2.0$  W/kg (1-g or 10-g respectively).
- Additional testing required in order satisfying FCC simultaneous transmission limit criteria.
- Only one zoom-scan was evaluated at Wi-Fi Ant.2, when SAR test performed for Wi-Fi MIMO mode.
- RSDB SAR test evaluated for determining simultaneous transmission SAR test exclusion of WWAN+RSDB scenarios. For only Head exposure condition, Normal SAR values were considered for determining simultaneous transmission SAR test exclusion of WWAN+RSDB scenarios.

**U-NII 2C Results**

| Antenna              | Frequency Band   | Mode                      | RF Exposure Conditions | PWR Back-off | Dist. (mm) | Test Position | Ch # | Freq. (MHz) | Area Scan Max. SAR (W/kg) | Duty Cycle (%) | Power (dBm)   |       | 1-g SAR (W/kg) |        | 10-g SAR (W/kg) |        | Note | Plot No. |
|----------------------|------------------|---------------------------|------------------------|--------------|------------|---------------|------|-------------|---------------------------|----------------|---------------|-------|----------------|--------|-----------------|--------|------|----------|
|                      |                  |                           |                        |              |            |               |      |             |                           |                | Tune-up limit | Meas. | Meas.          | Scaled | Meas.           | Scaled |      |          |
| SISO (Wi-Fi Ant.1)   | 5.5 GHz U-NII 2C | 802.11ac VHT 80 29.3 Mbps | Head                   | On           | 0          | Left Touch    | 138  | 5690.0      | 0.023                     | 98.1           | 13.0          | 12.2  |                |        |                 |        |      |          |
|                      |                  |                           |                        |              |            | Left Tilt     | 138  | 5690.0      | 0.014                     | 98.1           | 13.0          | 12.2  |                |        |                 |        |      |          |
|                      |                  |                           |                        |              |            | Right Touch   | 138  | 5690.0      | 0.052                     | 98.1           | 13.0          | 12.2  | <0.001         | <0.001 |                 |        | 1    |          |
|                      |                  |                           |                        |              |            | Right Tilt    | 138  | 5690.0      | 0.025                     | 98.1           | 13.0          | 12.2  |                |        |                 |        |      |          |
|                      | 5.5 GHz U-NII 2C | 802.11a 6 Mbps            | Body-worn              | Off          | 15         | Rear          | 144  | 5720.0      | 0.269                     | 98.2           | 15.0          | 14.3  | 0.126          | 0.150  |                 |        | 1    | 48       |
|                      |                  |                           |                        |              |            | Front         | 144  | 5720.0      | 0.025                     | 98.2           | 15.0          | 14.3  |                |        |                 |        |      |          |
|                      |                  | Product Specific 10-g     | Off                    | 0            | 0          | Rear          | 144  | 5720.0      | 6.107                     | 98.2           | 15.0          | 14.3  |                |        | 0.488           | 0.580  | 1    | 49       |
|                      |                  |                           |                        |              |            | Front         | 144  | 5720.0      | 0.230                     | 98.2           | 15.0          | 14.3  |                |        |                 |        |      |          |
|                      |                  |                           |                        |              |            | Edge 1        | 144  | 5720.0      | 0.331                     | 98.2           | 15.0          | 14.3  |                |        |                 |        |      |          |
|                      |                  |                           |                        |              |            | Edge 4        | 144  | 5720.0      | 0.320                     | 98.2           | 15.0          | 14.3  |                |        |                 |        |      |          |
| SISO (Wi-Fi Ant.2)   | 5.5 GHz U-NII 2C | 802.11ac VHT 80 29.3 Mbps | Head                   | On           | 0          | Left Touch    | 138  | 5690.0      | 0.041                     | 98.1           | 13.0          | 12.6  |                |        |                 |        |      |          |
|                      |                  |                           |                        |              |            | Left Tilt     | 138  | 5690.0      | 0.032                     | 98.1           | 13.0          | 12.6  |                |        |                 |        |      |          |
|                      |                  |                           |                        |              |            | Right Touch   | 138  | 5690.0      | 0.036                     | 98.1           | 13.0          | 12.6  |                |        |                 |        |      |          |
|                      |                  |                           |                        |              |            | Right Tilt    | 138  | 5690.0      | 0.052                     | 98.1           | 13.0          | 12.6  | 0.015          | 0.017  |                 |        | 1    | 47       |
|                      | 5.5 GHz U-NII 2C | 802.11a 6 Mbps            | Body-worn              | Off          | 15         | Rear          | 124  | 5620.0      | 0.115                     | 98.2           | 15.0          | 14.3  | 0.047          | 0.057  |                 |        | 1    |          |
|                      |                  |                           |                        |              |            | Front         | 124  | 5620.0      | 0.020                     | 98.2           | 15.0          | 14.3  |                |        |                 |        |      |          |
|                      |                  | Product Specific 10-g     | Off                    | 0            | 0          | Rear          | 124  | 5620.0      | 4.303                     | 98.2           | 15.0          | 14.3  |                |        | 0.433           | 0.520  | 1    |          |
|                      |                  |                           |                        |              |            | Front         | 124  | 5620.0      | 0.083                     | 98.2           | 15.0          | 14.3  |                |        |                 |        |      |          |
|                      |                  |                           |                        |              |            | Edge 1        | 124  | 5620.0      | 0.350                     | 98.2           | 15.0          | 14.3  |                |        |                 |        |      |          |
|                      |                  |                           |                        |              |            | Edge 4        | 124  | 5620.0      | 0.527                     | 98.2           | 15.0          | 14.3  |                |        |                 |        |      |          |
| MIMO (Wi-Fi Ant.1+2) | 5.5 GHz U-NII 2C | 802.11a 6 Mbps            | Body-worn              | Off          | 15         | Rear          | 144  | 5720.0      | 0.385                     | 98.2           | 15.0          | 13.6  | 0.167          | 0.237  |                 |        | 1, 5 |          |
|                      |                  |                           |                        |              |            | Front         | 144  | 5720.0      | 0.020                     | 98.2           | 15.0          | 13.6  |                |        |                 |        |      |          |

**U-NII 2C RSDB mode**

| Antenna              | Frequency Band   | Mode          | RF Exposure Conditions | PWR Back-off | Dist. (mm) | Test Position | Ch # | Freq. (MHz) | Area Scan Max. SAR (W/kg) | Duty Cycle (%) | Power (dBm)   |       | 1-g SAR (W/kg) |        | Note | Plot No. |
|----------------------|------------------|---------------|------------------------|--------------|------------|---------------|------|-------------|---------------------------|----------------|---------------|-------|----------------|--------|------|----------|
|                      |                  |               |                        |              |            |               |      |             |                           |                | Tune-up limit | Meas. | Meas.          | Scaled |      |          |
| MIMO (Wi-Fi Ant.1+2) | 5.5 GHz U-NII 2C | 802.11a 6Mbps | Body-worn              | Off          | 15         | Rear          | 144  | 5720.0      | 0.354                     | 98.2           | 14.0          | 13.3  | 0.134          | 0.162  | 1, 5 | 50       |
|                      |                  |               |                        |              |            | Front         | 144  | 5720.0      | 0.024                     | 98.2           | 14.0          | 13.3  |                |        |      |          |
| SISO (Wi-Fi Ant.1)   | 5.5 GHz U-NII 2C | 802.11a 6Mbps | Body-worn              | Off          | 15         | Rear          | 144  | 5720.0      | 0.236                     | 98.2           | 14.0          | 13.3  | 0.110          | 0.132  | 1    |          |
| SISO (Wi-Fi Ant.2)   | 5.5 GHz U-NII 2C | 802.11a 6Mbps | Body-worn              | Off          | 15         | Rear          | 144  | 5720.0      | 0.102                     | 98.2           | 14.0          | 13.2  | 0.036          | 0.044  | 1    |          |

**Note(s):**

- When the Highest reported SAR is  $\leq 0.4$  or  $1.0$  W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
- Highest reported SAR is  $> 0.4$  or  $1.0$  W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR  $\leq 0.8$  or  $2.0$  W/kg (1-g or 10-g respectively) was reported.
- Testing for a second channel was required because the reported SAR for this test position was  $> 0.8$  or  $2.0$  W/kg (1-g or 10-g respectively).
- Additional testing required in order satisfying FCC simultaneous transmission limit criteria.
- Only one zoom-scan was evaluated at Wi-Fi Ant.1, when SAR test performed for Wi-Fi MIMO mode.
- RSDB SAR test evaluated for determining simultaneous transmission SAR test exclusion of WWAN+RSDB scenarios. For only Head exposure condition, Normal SAR values were considered for determining simultaneous transmission SAR test exclusion of WWAN+RSDB scenarios.

**U-NII 3 Results**

| Antenna                  | Frequency Band  | Mode                      | RF Exposure Conditions | PWR Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Area Scan Max. SAR (W/kg) | Duty Cycle (%) | Power (dBm)   |       | 1-g SAR (W/kg) |        | Note | Plot No. |
|--------------------------|-----------------|---------------------------|------------------------|--------------|------------|---------------|-------|-------------|---------------------------|----------------|---------------|-------|----------------|--------|------|----------|
|                          |                 |                           |                        |              |            |               |       |             |                           |                | Tune-up limit | Meas. | Meas.          | Scaled |      |          |
| SISO (Wi-Fi Ant.1)       | 5.8 GHz U-NII 3 | 802.11ac VHT 80 29.3 Mbps | Head                   | On           | 0          | Left Touch    | 155   | 5775.0      | 0.020                     | 98.1           | 13.0          | 12.4  |                |        |      |          |
|                          |                 |                           |                        |              |            | Left Tilt     | 155   | 5775.0      | 0.013                     | 98.1           | 13.0          | 12.4  |                |        |      |          |
|                          |                 |                           |                        |              |            | Right Touch   | 155   | 5775.0      | 0.024                     | 98.1           | 13.0          | 12.4  |                |        |      |          |
|                          |                 |                           |                        |              |            | Right Tilt    | 155   | 5775.0      | 0.026                     | 98.1           | 13.0          | 12.4  | 0.003          | 0.003  | 1    | 51       |
|                          | 5.8 GHz U-NII 3 | 802.11a 6 Mbps            | Body-worn              | Off          | 15         | Rear          | 157   | 5785.0      | 0.283                     | 98.2           | 17.0          | 16.5  | 0.141          | 0.163  | 1    | 52       |
|                          |                 |                           |                        |              |            | Front         | 157   | 5785.0      | 0.018                     | 98.2           | 17.0          | 16.5  |                |        |      |          |
|                          |                 |                           | Hotspot                | Off          | 10         | Rear          | 149   | 5745.0      | 0.811                     | 98.2           | 17.0          | 16.3  | 0.317          | 0.378  | 1    | 53       |
|                          |                 |                           |                        |              |            | Front         | 149   | 5745.0      | 0.017                     | 98.2           | 17.0          | 16.3  |                |        |      |          |
| SISO (Wi-Fi Ant.2)       | 5.8 GHz U-NII 3 | 802.11ac VHT 80 29.3 Mbps | Head                   | On           | 0          | Left Touch    | 155   | 5775.0      | 0.071                     | 98.1           | 13.0          | 11.5  | <0.001         | <0.001 | 1    |          |
|                          |                 |                           |                        |              |            | Left Tilt     | 155   | 5775.0      | 0.061                     | 98.1           | 13.0          | 11.5  |                |        |      |          |
|                          |                 |                           |                        |              |            | Right Touch   | 155   | 5775.0      | 0.044                     | 98.1           | 13.0          | 11.5  |                |        |      |          |
|                          |                 |                           |                        |              |            | Right Tilt    | 155   | 5775.0      | 0.057                     | 98.1           | 13.0          | 11.5  |                |        |      |          |
|                          | 5.8 GHz U-NII 3 | 802.11a 6 Mbps            | Body-worn              | Off          | 15         | Rear          | 157   | 5785.0      | 0.176                     | 98.2           | 17.0          | 15.7  | 0.076          | 0.105  | 1    |          |
|                          |                 |                           |                        |              |            | Front         | 157   | 5785.0      | 0.022                     | 98.2           | 17.0          | 15.7  |                |        |      |          |
|                          |                 |                           | Hotspot                | Off          | 10         | Rear          | 149   | 5745.0      | 0.483                     | 98.2           | 17.0          | 15.6  | 0.195          | 0.272  | 1    |          |
|                          |                 |                           |                        |              |            | Front         | 149   | 5745.0      | 0.024                     | 98.2           | 17.0          | 15.6  |                |        |      |          |
| MIMO (Wi-Fi Ant.1+Ant.2) | 5.8 GHz U-NII 3 | 802.11a 6 Mbps            | Body-worn              | Off          | 15         | Edge 1        | 149   | 5745.0      | 0.109                     | 98.2           | 17.0          | 15.6  |                |        |      |          |
|                          |                 |                           |                        |              |            | Edge 4        | 149   | 5745.0      | 0.130                     | 98.2           | 17.0          | 15.6  |                |        |      |          |
|                          |                 |                           | Hotspot                | Off          | 10         | Rear          | 157   | 5785.0      | 0.547                     | 98.2           | 17.0          | 16.4  | 0.246          | 0.291  | 1, 5 |          |
|                          |                 |                           |                        |              |            | Front         | 157   | 5785.0      | 0.023                     | 98.2           | 17.0          | 16.4  |                |        |      |          |
|                          |                 |                           | Body-worn              | Off          | 15         | Rear          | 149   | 5745.0      | 1.059                     | 98.2           | 17.0          | 16.3  | 0.458          | 0.548  | 5    |          |
|                          |                 |                           |                        |              |            | Front         | 149   | 5745.0      | 0.027                     | 98.2           | 17.0          | 16.3  |                |        |      |          |
|                          |                 |                           | Hotspot                | Off          | 10         | Edge 1        | 149   | 5745.0      | 0.176                     | 98.2           | 17.0          | 16.3  | 0.069          | 0.083  | 2, 5 |          |
|                          |                 |                           |                        |              |            | Edge 4        | 149   | 5745.0      | 0.170                     | 98.2           | 17.0          | 16.3  |                |        |      |          |

**U-NII 3 RSDB mode**

| Antenna              | Frequency Band  | Mode           | RF Exposure Conditions | PWR Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Area Scan Max. SAR (W/kg) | Duty Cycle (%) | Power (dBm)   |       | 1-g SAR (W/kg) |        | Note | Plot No. |
|----------------------|-----------------|----------------|------------------------|--------------|------------|---------------|-------|-------------|---------------------------|----------------|---------------|-------|----------------|--------|------|----------|
|                      |                 |                |                        |              |            |               |       |             |                           |                | Tune-up limit | Meas. | Meas.          | Scaled |      |          |
| MIMO (Wi-Fi Ant.1+2) | 5.8 GHz U-NII 3 | 802.11ac VHT80 | Body-worn              | Off          | 15         | Rear          | 155   | 5775.0      | 0.237                     | 98.0           | 14.0          | 13.4  | 0.085          | 0.100  | 1, 5 |          |
|                      |                 |                |                        |              |            | Front         | 155   | 5775.0      | 0.013                     | 98.0           | 14.0          | 13.4  |                |        |      |          |
|                      |                 |                | Hotspot                | Off          | 10         | Rear          | 155   | 5775.0      | 0.398                     | 98.0           | 14.0          | 13.4  | 0.156          | 0.185  | 1, 5 | 54       |
|                      |                 |                |                        |              |            | Front         | 155   | 5775.0      | 0.017                     | 98.0           | 14.0          | 13.4  |                |        |      |          |
|                      |                 |                |                        |              |            | Edge 1        | 155   | 5775.0      | 0.065                     | 98.0           | 14.0          | 13.4  |                |        |      |          |
| SISO (Wi-Fi Ant.1)   | 5.8 GHz U-NII 3 | 802.11ac VHT80 | Body-worn              | Off          | 15         | Rear          | 155   | 5775.0      | 0.150                     | 98.1           | 14.0          | 13.5  | 0.058          | 0.066  | 1    |          |
|                      |                 |                | Hotspot                |              | 10         | Rear          | 155   | 5775.0      | 0.267                     | 98.1           | 14.0          | 13.5  | 0.121          | 0.140  |      |          |
| SISO (Wi-Fi Ant.2)   | 5.8 GHz U-NII 3 | 802.11ac VHT80 | Body-worn              | Off          | 15         | Rear          | 155   | 5775.0      | 0.082                     | 98.1           | 14.0          | 12.5  | 0.028          | 0.041  | 1    |          |
|                      |                 |                | Hotspot                |              | 10         | Rear          | 155   | 5775.0      | 0.121                     | 98.1           | 14.0          | 12.5  | 0.060          | 0.085  |      |          |

**Note(s):**

1. When the Highest reported SAR is  $\leq 0.4$  or  $1.0$  W/kg (1-g or 10-g respectively). Therefore, further SAR measurements within this exposure condition are not required.
2. Highest reported SAR is  $> 0.4$  or  $1.0$  W/kg (1-g or 10-g respectively). Due to the highest reported SAR for this test position, other test positions in this exposure condition were evaluated until a SAR  $\leq 0.8$  or  $2.0$  W/kg (1-g or 10-g respectively) was reported.
3. Testing for a second channel was required because the reported SAR for this test position was  $> 0.8$  or  $2.0$  W/kg (1-g or 10-g respectively).
4. Additional testing required in order satisfying FCC simultaneous transmission limit criteria.
5. Only one zoom-scan was evaluated at Wi-Fi Ant.1, when SAR test performed for Wi-Fi MIMO mode.
6. RSDB SAR test evaluated for determining simultaneous transmission SAR test exclusion of WWAN+RSDB scenarios.  
For only Head exposure condition, Normal SAR values were considered for determining simultaneous transmission SAR test exclusion of WWAN+RSDB scenarios.

**10.14 Bluetooth**

| Antenna     | Frequency Band | Mode | RF Exposure Conditions | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Duty Cycle (%) | Power (dBm)   |       | 1-g SAR (W/kg) |        | Plot No. |
|-------------|----------------|------|------------------------|------------|---------------|-------|-------------|----------------|---------------|-------|----------------|--------|----------|
|             |                |      |                        |            |               |       |             |                | Tune-up limit | Meas. | Meas.          | Scaled |          |
| Wi-Fi Ant.1 | 2.4 GHz        | GFSK | Head                   | 0          | Left Touch    | 39    | 2441.0      | 76.9           | 17.5          | 17.3  | 0.285          | 0.385  |          |
|             |                |      |                        |            | Left Tilt     | 39    | 2441.0      | 76.9           | 17.5          | 17.3  | 0.395          | 0.534  |          |
|             |                |      |                        |            | Right Touch   | 39    | 2441.0      | 76.9           | 17.5          | 17.3  | 0.429          | 0.580  |          |
|             |                |      |                        |            | Rightt Tilt   | 39    | 2441.0      | 76.9           | 17.5          | 17.3  | 0.563          | 0.761  | 55       |
|             |                |      | Body-worn              | 15         | Rear          | 39    | 2441.0      | 76.9           | 17.5          | 17.3  | 0.079          | 0.107  | 56       |
|             |                |      |                        |            | Front         | 39    | 2441.0      | 76.9           | 17.5          | 17.3  | 0.047          | 0.063  |          |
|             |                |      | Hotspot                | 10         | Rear          | 39    | 2441.0      | 76.9           | 17.5          | 17.3  | 0.178          | 0.241  |          |
|             |                |      |                        |            | Front         | 39    | 2441.0      | 76.9           | 17.5          | 17.3  | 0.081          | 0.109  |          |
|             |                |      |                        |            | Edge 1        | 39    | 2441.0      | 76.9           | 17.5          | 17.3  | 0.188          | 0.254  | 57       |
|             |                |      |                        |            | Edge 4        | 39    | 2441.0      | 76.9           | 17.5          | 17.3  | 0.036          | 0.049  |          |

## 11. SAR Measurement Variability

In accordance with published RF Exposure KDB 865664 D01 SAR measurement 100 MHz to 6 GHz. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

- 1) Repeated measurement is not required when the original highest measured SAR is  $<0.8$  or 2 W/kg (1-g or 10-g respectively); steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is  $\geq 0.8$  or 2 W/kg (1-g or 10-g respectively), repeat that measurement once.
- 3) Perform a second repeated measurement only if the **ratio of largest to smallest SAR** for the original and first repeated measurements is  $> 1.20$  or when the original or repeated measurement is  $\geq 1.45$  or 3.6 W/kg ( $\sim 10\%$  from the 1-g or 10-g respective SAR limit).
- 4) Perform a third repeated measurement only if the original, first, or second repeated measurement is  $\geq 1.5$  or 3.75 W/kg (1-g or 10-g respectively) and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .

### Peak spatial-average (1g of tissue)

| Frequency Band (MHz) | Air Interface     | RF Exposure Conditions | Test Position | Repeated SAR (Yes/No) | Highest Measured SAR (W/kg) | Repeated Measured SAR (W/kg) | Largest to Smallest SAR Ratio |
|----------------------|-------------------|------------------------|---------------|-----------------------|-----------------------------|------------------------------|-------------------------------|
| 700                  | LTE Band 12       | Hotspot                | Rear          | No                    | 0.255                       | N/A                          | N/A                           |
|                      | LTE Band 13       | Hotspot                | Rear          | No                    | 0.315                       | N/A                          | N/A                           |
| 835                  | GSM 850           | Hotspot                | Rear          | No                    | 0.462                       | N/A                          | N/A                           |
|                      | WCDMA Band V      | Hotspot                | Rear          | No                    | 0.504                       | N/A                          | N/A                           |
|                      | LTE Band 26       | Hotspot                | Rear          | No                    | 0.552                       | N/A                          | N/A                           |
| 1750                 | WCDMA Band IV     | Hotspot                | Edge 3        | No                    | 0.861                       | N/A                          | N/A                           |
|                      | LTE Band 66       | Hotspot                | Edge 3        | Yes                   | 0.914                       | 0.913                        | 1.00                          |
| 1900                 | GSM 1900          | Hotspot                | Edge 3        | No                    | 0.763                       | N/A                          | N/A                           |
|                      | WCDMA Band II     | Hotspot                | Edge 3        | No                    | 0.861                       | N/A                          | N/A                           |
|                      | LTE Band 25       | Hotspot                | Edge 3        | Yes                   | 0.987                       | 0.952                        | 1.04                          |
| 2400                 | Wi-Fi 802.11b/g/n | Head                   | Right Tilt    | No                    | 0.553                       | N/A                          | N/A                           |
|                      | Bluetooth         | Head                   | Right Tilt    | No                    | 0.563                       | N/A                          | N/A                           |
| 2600                 | LTE Band 41       | Hotspot                | Edge 3        | No                    | 0.608                       | N/A                          | N/A                           |
| 5250                 | Wi-Fi 802.11a/n   | Body                   | Rear          | No                    | 0.415                       | N/A                          | N/A                           |
| 5500                 | Wi-Fi 802.11a/n   | Body                   | Rear          | No                    | 0.167                       | N/A                          | N/A                           |
| 5800                 | Wi-Fi 802.11a/n   | Hotspot                | Rear          | No                    | 0.458                       | N/A                          | N/A                           |

### Peak spatial-average (10g of tissue)

| Frequency Band (MHz) | Air Interface   | RF Exposure Conditions | Test Position | Repeated SAR (Yes/No) | Highest Measured SAR (W/kg) | Repeated Measured SAR (W/kg) | Largest to Smallest SAR Ratio |
|----------------------|-----------------|------------------------|---------------|-----------------------|-----------------------------|------------------------------|-------------------------------|
| 1750                 | WCDMA Band IV   | Product specific 10g   | Edge 3        | Yes                   | 2.060                       | 2.060                        | 1.00                          |
|                      | LTE Band 66     | Product specific 10g   | Edge 3        | No                    | 1.970                       | N/A                          | N/A                           |
| 1900                 | GSM1900         | Product specific 10g   | Edge 3        | No                    | 1.190                       | N/A                          | N/A                           |
|                      | WCDMA Band II   | Product specific 10g   | Edge 3        | No                    | 1.340                       | N/A                          | N/A                           |
|                      | LTE Band 25     | Product specific 10g   | Edge 3        | No                    | 1.460                       | N/A                          | N/A                           |
| 5250                 | Wi-Fi 802.11a/n | Product specific 10g   | Rear          | No                    | 0.704                       | N/A                          | N/A                           |
| 5500                 | Wi-Fi 802.11a/n | Product specific 10g   | Rear          | No                    | 0.488                       | N/A                          | N/A                           |

#### Note(s):

Second Repeated Measurement is not required since the ratio of the largest to smallest SAR for the original and first repeated measurement is not  $> 1.20$ .

## 12. DUT Holder Perturbations

In accordance with published DUT Holder Perturbations in Oct.2016 TCB workshop,

When Highest reported SAR is over 1.2 or 3.0 W/kg (1-g or 10-g respectively), Holder perturbation verification is required for each antenna, using the highest configuration among all applicable frequency bands. Both Head test and Body test (Edge 1-4 sides) are evaluated with DUT holder. Both Front and Rear sides are evaluated without DUT holder. (Details of test setup are refer to Appendix A.)

So we are only consider about Head test and Body test (Edge 1-4 sides).

| Antenna      | Frequency Band (MHz) | Air Interface | RF Exposure Conditions | Test Position | DUT Holder Perturbation (Yes/No) | Highest Reported SAR (W/kg) | SAR test without holder Scaled SAR (W/kg) | Deviation (%) |
|--------------|----------------------|---------------|------------------------|---------------|----------------------------------|-----------------------------|-------------------------------------------|---------------|
| Main Ant.1-1 | 1900                 | GSM 1900      | Hotspot                | Edge 3        | Yes                              | 1.202                       | 1.142                                     | -5.0          |
| Main Ant.1-1 | 1900                 | WCDMA Band II | Hotspot                | Edge 3        | Yes                              | 1.233                       | 1.195                                     | -3.1          |
| Main Ant.1-1 | 1900                 | LTE Band 25   | Hotspot                | Edge 3        | Yes                              | 1.339                       | 1.321                                     | -1.3          |

### Note(s):

Both deviations should be within measurement uncertainty (22%).

### 13. Simultaneous Transmission SAR Analysis

#### Simultaneous Transmission Condition

| RF Exposure Condition                                                             | Item | Capable Transmit Configurations |   |                           |   |             |
|-----------------------------------------------------------------------------------|------|---------------------------------|---|---------------------------|---|-------------|
| Head &<br>Body-worn &<br>Phablet-10g                                              | 1    | GSM(Voice/GPRS)                 | + | DTS_Ant.1                 | + | DTS_Ant.2   |
|                                                                                   | 2    | GSM(Voice/GPRS)                 | + | U-NII_Ant.1               | + | U-NII_Ant.2 |
|                                                                                   | 3    | GSM(Voice/GPRS)                 | + | BT                        |   |             |
|                                                                                   | 4    | GSM(Voice/GPRS)                 | + | U-NII_Ant.1               | + | BT          |
|                                                                                   | 5    | GSM(Voice/GPRS)                 | + | U-NII_Ant.2               | + | BT          |
|                                                                                   | 6    | GSM(Voice/GPRS)                 | + | U-NII_Ant.1 + U-NII_Ant.2 | + | BT          |
|                                                                                   | 7    | GSM(Voice/GPRS)                 | + | RSDB scenarios            |   |             |
|                                                                                   | 8    | W-CDMA                          | + | DTS_Ant.1                 | + | DTS_Ant.2   |
|                                                                                   | 9    | W-CDMA                          | + | U-NII_Ant.1               | + | U-NII_Ant.2 |
|                                                                                   | 10   | W-CDMA                          | + | BT                        |   |             |
|                                                                                   | 11   | W-CDMA                          | + | U-NII_Ant.1               | + | BT          |
|                                                                                   | 12   | W-CDMA                          | + | U-NII_Ant.2               | + | BT          |
|                                                                                   | 13   | W-CDMA                          | + | U-NII_Ant.1 + U-NII_Ant.2 | + | BT          |
|                                                                                   | 14   | W-CDMA                          | + | RSDB scenarios            |   |             |
|                                                                                   | 15   | LTE                             | + | DTS_Ant.1                 | + | DTS_Ant.2   |
|                                                                                   | 16   | LTE                             | + | U-NII_Ant.1               | + | U-NII_Ant.2 |
|                                                                                   | 17   | LTE                             | + | BT                        |   |             |
|                                                                                   | 18   | LTE                             | + | U-NII_Ant.1               | + | BT          |
|                                                                                   | 19   | LTE                             | + | U-NII_Ant.2               | + | BT          |
|                                                                                   | 20   | LTE                             | + | U-NII_Ant.1 + U-NII_Ant.2 | + | BT          |
|                                                                                   | 21   | LTE                             | + | RSDB scenarios            |   |             |
| Hotspot                                                                           | 22   | GSM(GPRS)                       | + | DTS_Ant.1                 | + | DTS_Ant.2   |
|                                                                                   | 23   | GSM(GPRS)                       | + | U-NII_Ant.1               | + | U-NII_Ant.2 |
|                                                                                   | 24   | GSM(GPRS)                       | + | BT                        |   |             |
|                                                                                   | 25   | GSM(GPRS)                       | + | U-NII_Ant.1               | + | BT          |
|                                                                                   | 26   | GSM(GPRS)                       | + | U-NII_Ant.2               | + | BT          |
|                                                                                   | 27   | GSM(GPRS)                       | + | U-NII_Ant.1 + U-NII_Ant.2 | + | BT          |
|                                                                                   | 28   | GSM(GPRS)                       | + | RSDB scenarios            |   |             |
|                                                                                   | 29   | W-CDMA                          | + | DTS_Ant.1                 | + | DTS_Ant.2   |
|                                                                                   | 30   | W-CDMA                          | + | U-NII_Ant.1               | + | U-NII_Ant.2 |
|                                                                                   | 31   | W-CDMA                          | + | BT                        |   |             |
|                                                                                   | 32   | W-CDMA                          | + | U-NII_Ant.1               | + | BT          |
|                                                                                   | 33   | W-CDMA                          | + | U-NII_Ant.2               | + | BT          |
|                                                                                   | 34   | W-CDMA                          | + | U-NII_Ant.1 + U-NII_Ant.2 | + | BT          |
|                                                                                   | 35   | W-CDMA                          | + | RSDB scenarios            |   |             |
|                                                                                   | 36   | LTE                             | + | DTS_Ant.1                 | + | DTS_Ant.2   |
|                                                                                   | 37   | LTE                             | + | U-NII_Ant.1               | + | U-NII_Ant.2 |
|                                                                                   | 38   | LTE                             | + | BT                        |   |             |
|                                                                                   | 39   | LTE                             | + | U-NII_Ant.1               | + | BT          |
|                                                                                   | 40   | LTE                             | + | U-NII_Ant.2               | + | BT          |
|                                                                                   | 41   | LTE                             | + | U-NII_Ant.1 + U-NII_Ant.2 | + | BT          |
|                                                                                   | 42   | LTE                             | + | RSDB scenarios            |   |             |
| Notes:                                                                            |      |                                 |   |                           |   |             |
| 1. DTS supports Wi-Fi Direct, Hotspot and VoIP.                                   |      |                                 |   |                           |   |             |
| 2. U-NII supports Wi-Fi Direct, Hotspot and VoIP.                                 |      |                                 |   |                           |   |             |
| 3. GPRS, W-CDMA, LTE supports Hotspot and VoIP.                                   |      |                                 |   |                           |   |             |
| 4. U-NII Radio can transmit simultaneously with Bluetooth Radio.                  |      |                                 |   |                           |   |             |
| 5. DTS Radio cannot transmit simultaneously with Bluetooth Radio.                 |      |                                 |   |                           |   |             |
| 6. DTS Radio can only transmit simultaneously with U-NII Radio in RSDB scenarios. |      |                                 |   |                           |   |             |
| 7. DTS and U-NII Radio can be operating both SISO and MIMO modes.                 |      |                                 |   |                           |   |             |
| 8. BT tethering is considered about each RF exposure conditions                   |      |                                 |   |                           |   |             |

#### RSDB scenarios

| Mode                     | Scenario | # of TX | 5GHz |      | 2.4GHz |      |
|--------------------------|----------|---------|------|------|--------|------|
|                          |          |         | Ant1 | Ant2 | Ant1   | Ant2 |
| 2.4GHz+5GHz<br>RSDB Only | 1        | 2       | On   | -    | -      | On   |
|                          | 2        | 2       | -    | On   | On     | -    |
|                          | 3        | 2       | On   | -    | On     | -    |
|                          | 4        | 2       | -    | On   | -      | On   |
| 2.4GHz+5GHz<br>RSDB&MIMO | 5        | 3       | On   | On   | On     | -    |
|                          | 6        | 3       | On   | On   | -      | On   |
|                          | 7        | 3       | On   | -    | On     | On   |
|                          | 8        | 3       | -    | On   | On     | On   |
| 2.4GHz+5GHz<br>RSDB MIMO | 9        | 4       | On   | On   | On     | On   |

## Simultaneous transmission SAR test exclusion considerations

KDB 447498 D01 General RF Exposure Guidance provides two procedures for determining simultaneous transmission SAR test exclusion: Sum of SAR and SAR to Peak Location Ratio (SPLSR)

### Sum of SAR

To qualify for simultaneous transmission SAR test exclusion based upon Sum of SAR the sum of the reported standalone SARs for all simultaneously transmitting antennas shall be below the applicable standalone SAR limit. If the sum of the SARs is above the applicable limit then simultaneous transmission SAR test exclusion may still apply if the requirements of the SAR to Peak Location Ratio (SPLSR) evaluation are met.

### SAR to Peak Location Ratio (SPLSR)

KDB 447498 D01 General RF Exposure Guidance explains how to calculate the SAR to Peak Location Ratio (SPLSR) between pairs of simultaneously transmitting antennas:

$$SPLSR = (SAR_1 + SAR_2)^{1.5} / Ri$$

Where:

**SAR<sub>1</sub>** is the highest reported or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition

**SAR<sub>2</sub>** is the highest reported or estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first

**Ri** is the separation distance between the pair of simultaneous transmitting antennas. When the SAR is measured, for both antennas in the pair, it is determined by the actual x, y and z coordinates in the 1-g SAR for each SAR peak location, based on the extrapolated and interpolated result in the zoom scan measurement, using the formula of

$$[(x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2]$$

In order for a pair of simultaneous transmitting antennas with the sum of 1-g SAR > 1.6 W/kg to qualify for exemption from Simultaneous Transmission SAR measurements, it has to satisfy the condition of:

$$(SAR_1 + SAR_2)^{1.5} / Ri \leq 0.04$$

When an individual antenna transmits at on two bands simultaneously, the sum of the highest *reported* SAR for the frequency bands should be used to determine **SAR<sub>1</sub>** or **SAR<sub>2</sub>**. When SPLSR is necessary, the smallest distance between the peak SAR locations for the antenna pair with respect to the peaks from each antenna should be used.

The antennas in all antenna pairs that do not qualify for simultaneous transmission SAR test exclusion must be tested for SAR compliance, according to the enlarged zoom scan and volume scan post-processing procedures in KDB Publication 865664 D01

The antennas for the unlicensed transmitters are closely situated. As a result, the associated SAR hotspots are also closely situated. Some of the sum of SAR calculations yielded results over 1.6 W/kg. The SPLSR calculations for these situations were performed by treating the unlicensed SAR values as a single transmitter. The most conservative distance between all the unlicensed hotspots to the licensed hotspot was used for the value of *d* in the SPLSR calculation.

## Simultaneous transmission SAR measurement

When simultaneous transmission SAR measurements are required in different frequency bands not covered by a single probe calibration point then separate tests for each frequency band are performed. The tests are performed using enlarged zoom scans which are processed, by means of superposition, using the DASY5 volume scan postprocessing procedures to determine the 1-g SAR for the aggregate SAR distribution.

The spatial resolution used for all enlarged zoom scans is the same as used for the most stringent zoom scans. I.E. the scan parameters required for the highest frequency assessed are used for all enlarged zoom scans. The scans cover the complete area of the device to ensure all transmitting antennas and radiating structures are assessed.

DASY5 provides the ability to perform Multiband Evaluations according to the latest standards using the Volume Scan job as well as appropriate routines for the Post-processing.

In order to extract and process measurements within different frequency bands, the SEMCAD X Post-processor performs the combination and subsequent superposition of these measurement data via DASY5= Combined MultiBand Averaged SAR.

Combined Multi Band Averaged SAR allows - in addition to the data extraction - an evaluation of the 1 g, 10 g and/or arbitrary averaged mass SAR.

Power Scaling Factor is used to allow the volume scans to be scaled by a value other than "1", this is important when the results need to be scaled to different maximum power levels. The Power Scaling Factor is applied to each individual point of the scan. When power scaling is used in multi-band combinations the scaling factor is applied to each individual point of the first scan, the second factor is then applied to each individual point of the second scan and so on. The scans are then combined.

### 13.1 Sum of the SAR for GSM 850 & Wi-Fi & BT

| RF Exposure            | Test Position | Standalone SAR (W/kg) |           |           |            |            |           |       | Σ SAR (W/kg)     |                  |                 |                   |                   |                          |           |                        |                        |                              |
|------------------------|---------------|-----------------------|-----------|-----------|------------|------------|-----------|-------|------------------|------------------|-----------------|-------------------|-------------------|--------------------------|-----------|------------------------|------------------------|------------------------------|
|                        |               | WWAN                  | DTS Ant.1 | DTS Ant.2 | UNII Ant.1 | UNII Ant.2 | UNII MIMO | BT    | WWAN + DTS Ant.1 | WWAN + DTS Ant.2 | WWAN + DTS MIMO | WWAN + UNII Ant.1 | WWAN + UNII Ant.2 | WWAN + UNII MIMO         | WWAN + BT | WWAN + BT + UNII Ant.1 | WWAN + BT + UNII Ant.2 | WWAN + BT + UNII MIMO        |
|                        |               | 1                     | 2         | 3         | 4          | 5          | 6         | 7     | 1+2              | 1+3              | 1+2+3           | 1+4               | 1+5               | A&D : 1+4+5<br>B&C : 1+6 | 1+7       | 1+4+7                  | 1+5+7                  | A&D : 1+4+5+7<br>B&C : 1+6+7 |
| A : Head (1g-SAR)      | All position  | 0.207                 | 0.625     | 0.040     | 0.034      | 0.023      |           | 0.761 | 0.832            | 0.247            | 0.872           | 0.241             | 0.230             | 0.264                    | 0.968     | 1.002                  | 0.991                  | 1.025                        |
| B : Body-Worn (1g-SAR) | All position  | 0.444                 | 0.099     | 0.074     | 0.232      | 0.105      | 0.447     | 0.107 | 0.543            | 0.518            | 0.617           | 0.676             | 0.549             | 0.891                    | 0.551     | 0.783                  | 0.656                  | 0.998                        |
| C : Hotspot (1-g SAR)  | Rear          | 0.633                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.241 | 0.986            | 0.917            | 1.270           | 1.011             | 0.905             | 1.181                    | 0.874     | 1.252                  | 1.146                  | 1.422                        |
|                        | Front         | 0.473                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.109 | 0.826            | 0.757            | 1.110           | 0.851             | 0.745             | 1.021                    | 0.582     | 0.960                  | 0.854                  | 1.130                        |
|                        | Edge 1        |                       | 0.353     | 0.284     | 0.378      | 0.272      | 0.083     | 0.254 |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 2        | 0.507                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 3        | 0.410                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 4        | 0.177                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.049 | 0.530            | 0.461            | 0.814           | 0.555             | 0.449             | 0.725                    | 0.226     | 0.604                  | 0.498                  | 0.774                        |

### 13.2 Sum of the SAR for GSM 1900 & Wi-Fi & BT

| RF Exposure                          | Test Position | Standalone SAR (W/kg) |           |           |            |            |           |       | Σ SAR (W/kg)     |                  |                 |                   |                   |                          |           |                        |                        |                              |
|--------------------------------------|---------------|-----------------------|-----------|-----------|------------|------------|-----------|-------|------------------|------------------|-----------------|-------------------|-------------------|--------------------------|-----------|------------------------|------------------------|------------------------------|
|                                      |               | WWAN                  | DTS Ant.1 | DTS Ant.2 | UNII Ant.1 | UNII Ant.2 | UNII MIMO | BT    | WWAN + DTS Ant.1 | WWAN + DTS Ant.2 | WWAN + DTS MIMO | WWAN + UNII Ant.1 | WWAN + UNII Ant.2 | WWAN + UNII MIMO         | WWAN + BT | WWAN + BT + UNII Ant.1 | WWAN + BT + UNII Ant.2 | WWAN + BT + UNII MIMO        |
|                                      |               | 1                     | 2         | 3         | 4          | 5          | 6         | 7     | 1+2              | 1+3              | 1+2+3           | 1+4               | 1+5               | A&D : 1+4+5<br>B&C : 1+6 | 1+7       | 1+4+7                  | 1+5+7                  | A&D : 1+4+5+7<br>B&C : 1+6+7 |
| A : Head (1g-SAR)                    | All position  | 0.067                 | 0.625     | 0.040     | 0.034      | 0.023      |           | 0.761 | 0.692            | 0.107            | 0.732           | 0.101             | 0.090             | 0.124                    | 0.828     | 0.862                  | 0.851                  | 0.885                        |
| B : Body-Worn (1g-SAR)               | All position  | 0.303                 | 0.099     | 0.074     | 0.232      | 0.105      | 0.447     | 0.107 | 0.402            | 0.377            | 0.476           | 0.535             | 0.408             | 0.750                    | 0.410     | 0.642                  | 0.515                  | 0.857                        |
| C : Hotspot (1-g SAR)                | Rear          | 0.520                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.241 | 0.873            | 0.804            | 1.157           | 0.898             | 0.792             | 1.068                    | 0.761     | 1.139                  | 1.033                  | 1.309                        |
|                                      | Front         | 0.453                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.109 | 0.806            | 0.737            | 1.090           | 0.831             | 0.725             | 1.001                    | 0.562     | 0.940                  | 0.834                  | 1.110                        |
|                                      | Edge 1        |                       | 0.353     | 0.284     | 0.378      | 0.272      | 0.083     | 0.254 |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 2        | 0.089                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 3        | 1.202                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 4        | 0.097                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.049 | 0.450            | 0.381            | 0.734           | 0.475             | 0.369             | 0.645                    | 0.146     | 0.524                  | 0.418                  | 0.694                        |
| D : Product Specific 10-g (10-g SAR) | Rear          |                       |           |           | 0.913      | 0.520      |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Front         |                       |           |           | 0.913      | 0.520      |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 1        |                       |           |           | 0.913      | 0.520      |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 2        |                       |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 3        | 1.610                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 4        |                       |           |           | 0.913      | 0.520      |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |

#### Note(s):

1. Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
2. MIMO SAR test evaluated at Body-worn & Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

### 13.3 Sum of the SAR for WCDMA Band II & Wi-Fi & BT

| RF Exposure                          | Test Position | Standalone SAR (W/kg) |           |           |            |            |           |       | Σ SAR (W/kg)     |                  |                 |                   |                   |                          |           |                        |                        |                              |
|--------------------------------------|---------------|-----------------------|-----------|-----------|------------|------------|-----------|-------|------------------|------------------|-----------------|-------------------|-------------------|--------------------------|-----------|------------------------|------------------------|------------------------------|
|                                      |               | WWAN                  | DTS Ant.1 | DTS Ant.2 | UNII Ant.1 | UNII Ant.2 | UNII MIMO | BT    | WWAN + DTS Ant.1 | WWAN + DTS Ant.2 | WWAN + DTS MIMO | WWAN + UNII Ant.1 | WWAN + UNII Ant.2 | WWAN + UNII MIMO         | WWAN + BT | WWAN + BT + UNII Ant.1 | WWAN + BT + UNII Ant.2 | WWAN + BT + UNII MIMO        |
|                                      |               | 1                     | 2         | 3         | 4          | 5          | 6         | 7     | 1+2              | 1+3              | 1+2+3           | 1+4               | 1+5               | A&D : 1+4+5<br>B&C : 1+6 | 1+7       | 1+4+7                  | 1+5+7                  | A&D : 1+4+5+7<br>B&C : 1+6+7 |
| A : Head (1g-SAR)                    | All position  | 0.172                 | 0.625     | 0.040     | 0.034      | 0.023      |           | 0.761 | 0.797            | 0.212            | 0.837           | 0.206             | 0.195             | 0.229                    | 0.933     | 0.967                  | 0.956                  | 0.990                        |
| B : Body-Worn (1g-SAR)               | All position  | 0.710                 | 0.099     | 0.074     | 0.232      | 0.105      | 0.447     | 0.107 | 0.809            | 0.784            | 0.883           | 0.942             | 0.815             | 1.157                    | 0.817     | 1.049                  | 0.922                  | 1.264                        |
| C : Hotspot (1-g SAR)                | Rear          | 0.575                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.241 | 0.928            | 0.859            | 1.212           | 0.953             | 0.847             | 1.123                    | 0.816     | 1.194                  | 1.088                  | 1.364                        |
|                                      | Front         | 0.497                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.109 | 0.850            | 0.781            | 1.134           | 0.875             | 0.769             | 1.045                    | 0.606     | 0.984                  | 0.878                  | 1.154                        |
|                                      | Edge 1        |                       | 0.353     | 0.284     | 0.378      | 0.272      | 0.083     | 0.254 |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 2        | 0.101                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 3        | 1.233                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 4        | 0.090                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.049 | 0.443            | 0.374            | 0.727           | 0.468             | 0.362             | 0.638                    | 0.139     | 0.517                  | 0.411                  | 0.687                        |
| D : Product Specific 10-g (10-g SAR) | Rear          | 1.543                 |           |           | 0.913      | 0.520      |           |       |                  |                  |                 | 2.456             | 2.063             | 2.976                    |           |                        |                        |                              |
|                                      | Front         |                       |           |           | 0.913      | 0.520      |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 1        |                       |           |           | 0.913      | 0.520      |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 2        |                       |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 3        | 1.846                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 4        |                       |           |           | 0.913      | 0.520      |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |

### 13.4 Sum of the SAR for WCDMA Band IV & Wi-Fi & BT

| RF Exposure                          | Test Position | Standalone SAR (W/kg) |           |           |            |            |           |       | Σ SAR (W/kg)     |                  |                 |                   |                   |                          |           |                        |                        |                              |
|--------------------------------------|---------------|-----------------------|-----------|-----------|------------|------------|-----------|-------|------------------|------------------|-----------------|-------------------|-------------------|--------------------------|-----------|------------------------|------------------------|------------------------------|
|                                      |               | WWAN                  | DTS Ant.1 | DTS Ant.2 | UNII Ant.1 | UNII Ant.2 | UNII MIMO | BT    | WWAN + DTS Ant.1 | WWAN + DTS Ant.2 | WWAN + DTS MIMO | WWAN + UNII Ant.1 | WWAN + UNII Ant.2 | WWAN + UNII MIMO         | WWAN + BT | WWAN + BT + UNII Ant.1 | WWAN + BT + UNII Ant.2 | WWAN + BT + UNII MIMO        |
|                                      |               | 1                     | 2         | 3         | 4          | 5          | 6         | 7     | 1+2              | 1+3              | 1+2+3           | 1+4               | 1+5               | A&D : 1+4+5<br>B&C : 1+6 | 1+7       | 1+4+7                  | 1+5+7                  | A&D : 1+4+5+7<br>B&C : 1+6+7 |
| A : Head (1g-SAR)                    | All position  | 0.246                 | 0.625     | 0.040     | 0.034      | 0.023      |           | 0.761 | 0.871            | 0.286            | 0.911           | 0.280             | 0.269             | 0.303                    | 1.007     | 1.041                  | 1.030                  | 1.064                        |
| B : Body-Worn (1g-SAR)               | All position  | 1.011                 | 0.099     | 0.074     | 0.232      | 0.105      | 0.447     | 0.107 | 1.110            | 1.085            | 1.184           | 1.243             | 1.116             | 1.458                    | 1.118     | 1.350                  | 1.223                  | 1.565                        |
| C : Hotspot (1-g SAR)                | Rear          | 0.798                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.241 | 1.151            | 1.082            | 1.435           | 1.176             | 1.070             | 1.346                    | 1.039     | 1.417                  | 1.311                  | 1.587                        |
|                                      | Front         | 0.641                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.109 | 0.994            | 0.925            | 1.278           | 1.019             | 0.913             | 1.189                    | 0.750     | 1.128                  | 1.022                  | 1.298                        |
|                                      | Edge 1        |                       | 0.353     | 0.284     | 0.378      | 0.272      | 0.083     | 0.254 |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 2        | 0.127                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 3        | 1.199                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 4        | 0.152                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.049 | 0.505            | 0.436            | 0.789           | 0.530             | 0.424             | 0.700                    | 0.201     | 0.579                  | 0.473                  | 0.749                        |
| D : Product Specific 10-g (10-g SAR) | Rear          | 2.154                 |           |           | 0.913      | 0.520      |           |       |                  |                  |                 | 3.067             | 2.674             | 3.587                    |           |                        |                        |                              |
|                                      | Front         | 1.357                 |           |           | 0.913      | 0.520      |           |       |                  |                  |                 | 2.270             | 1.877             | 2.790                    |           |                        |                        |                              |
|                                      | Edge 1        |                       |           |           | 0.913      | 0.520      |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 2        |                       |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 3        | 2.673                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 4        |                       |           |           | 0.913      | 0.520      |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |

#### Note(s):

- Blue values are reference from highest SAR value of initial test position procedure in each RF exposure of each bands.
- MIMO SAR test evaluated at Body-worn & Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

### 13.5 Sum of the SAR for WCDMA Band V & Wi-Fi & BT

| RF Exposure            | Test Position | Standalone SAR (W/kg) |           |           |            |            |           |       | Σ SAR (W/kg)     |                  |                 |                   |                   |                          |           |                        |                        |                              |
|------------------------|---------------|-----------------------|-----------|-----------|------------|------------|-----------|-------|------------------|------------------|-----------------|-------------------|-------------------|--------------------------|-----------|------------------------|------------------------|------------------------------|
|                        |               | WWAN                  | DTS Ant.1 | DTS Ant.2 | UNII Ant.1 | UNII Ant.2 | UNII MIMO | BT    | WWAN + DTS Ant.1 | WWAN + DTS Ant.2 | WWAN + DTS MIMO | WWAN + UNII Ant.1 | WWAN + UNII Ant.2 | WWAN + UNII MIMO         | WWAN + BT | WWAN + BT + UNII Ant.1 | WWAN + BT + UNII Ant.2 | WWAN + BT + UNII MIMO        |
|                        |               | 1                     | 2         | 3         | 4          | 5          | 6         | 7     | 1+2              | 1+3              | 1+2+3           | 1+4               | 1+5               | A&D : 1+4+5<br>B&C : 1+6 | 1+7       | 1+4+7                  | 1+5+7                  | A&D : 1+4+5+7<br>B&C : 1+6+7 |
| A : Head (1g-SAR)      | All position  | 0.214                 | 0.625     | 0.040     | 0.034      | 0.023      |           | 0.761 | 0.839            | 0.254            | 0.879           | 0.248             | 0.237             | 0.271                    | 0.975     | 1.009                  | 0.998                  | 1.032                        |
| B : Body-Worn (1g-SAR) | All position  | 0.230                 | 0.099     | 0.074     | 0.232      | 0.105      | 0.447     | 0.107 | 0.329            | 0.304            | 0.403           | 0.462             | 0.335             | 0.677                    | 0.337     | 0.569                  | 0.442                  | 0.784                        |
| C : Hotspot (1-g SAR)  | Rear          | 0.682                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.241 | 1.035            | 0.966            | 1.319           | 1.060             | 0.954             | 1.230                    | 0.923     | 1.301                  | 1.195                  | 1.471                        |
|                        | Front         | 0.330                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.109 | 0.683            | 0.614            | 0.967           | 0.708             | 0.602             | 0.878                    | 0.439     | 0.817                  | 0.711                  | 0.987                        |
|                        | Edge 1        |                       | 0.353     | 0.284     | 0.378      | 0.272      | 0.083     | 0.254 |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 2        | 0.283                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 3        | 0.264                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 4        | 0.184                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.049 | 0.537            | 0.468            | 0.821           | 0.562             | 0.456             | 0.732                    | 0.233     | 0.611                  | 0.505                  | 0.781                        |

### 13.6 Sum of the SAR for LTE Band 12 & Wi-Fi & BT

| RF Exposure            | Test Position | Standalone SAR (W/kg) |           |           |            |            |           |       | Σ SAR (W/kg)     |                  |                 |                   |                   |                          |           |                        |                        |                              |
|------------------------|---------------|-----------------------|-----------|-----------|------------|------------|-----------|-------|------------------|------------------|-----------------|-------------------|-------------------|--------------------------|-----------|------------------------|------------------------|------------------------------|
|                        |               | WWAN                  | DTS Ant.1 | DTS Ant.2 | UNII Ant.1 | UNII Ant.2 | UNII MIMO | BT    | WWAN + DTS Ant.1 | WWAN + DTS Ant.2 | WWAN + DTS MIMO | WWAN + UNII Ant.1 | WWAN + UNII Ant.2 | WWAN + UNII MIMO         | WWAN + BT | WWAN + BT + UNII Ant.1 | WWAN + BT + UNII Ant.2 | WWAN + BT + UNII MIMO        |
|                        |               | 1                     | 2         | 3         | 4          | 5          | 6         | 7     | 1+2              | 1+3              | 1+2+3           | 1+4               | 1+5               | A&D : 1+4+5<br>B&C : 1+6 | 1+7       | 1+4+7                  | 1+5+7                  | A&D : 1+4+5+7<br>B&C : 1+6+7 |
| A : Head (1g-SAR)      | All position  | 0.142                 | 0.625     | 0.040     | 0.034      | 0.023      |           | 0.761 | 0.767            | 0.182            | 0.807           | 0.176             | 0.165             | 0.199                    | 0.903     | 0.937                  | 0.926                  | 0.960                        |
| B : Body-Worn (1g-SAR) | All position  | 0.240                 | 0.099     | 0.074     | 0.232      | 0.105      | 0.447     | 0.107 | 0.339            | 0.314            | 0.413           | 0.472             | 0.345             | 0.687                    | 0.347     | 0.579                  | 0.452                  | 0.794                        |
| C : Hotspot (1-g SAR)  | Rear          | 0.325                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.241 | 0.678            | 0.609            | 0.962           | 0.703             | 0.597             | 0.873                    | 0.566     | 0.944                  | 0.838                  | 1.114                        |
|                        | Front         | 0.233                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.109 | 0.586            | 0.517            | 0.870           | 0.611             | 0.505             | 0.781                    | 0.342     | 0.720                  | 0.614                  | 0.890                        |
|                        | Edge 1        |                       | 0.353     | 0.284     | 0.378      | 0.272      | 0.083     | 0.254 |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 2        | 0.198                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 3        | 0.124                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 4        | 0.193                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.049 | 0.546            | 0.477            | 0.830           | 0.571             | 0.465             | 0.741                    | 0.242     | 0.620                  | 0.514                  | 0.790                        |

### 13.7 Sum of the SAR for LTE Band 13 & Wi-Fi & BT

| RF Exposure            | Test Position | Standalone SAR (W/kg) |           |           |            |            |           |       | Σ SAR (W/kg)     |                  |                 |                   |                   |                          |           |                        |                        |                              |
|------------------------|---------------|-----------------------|-----------|-----------|------------|------------|-----------|-------|------------------|------------------|-----------------|-------------------|-------------------|--------------------------|-----------|------------------------|------------------------|------------------------------|
|                        |               | WWAN                  | DTS Ant.1 | DTS Ant.2 | UNII Ant.1 | UNII Ant.2 | UNII MIMO | BT    | WWAN + DTS Ant.1 | WWAN + DTS Ant.2 | WWAN + DTS MIMO | WWAN + UNII Ant.1 | WWAN + UNII Ant.2 | WWAN + UNII MIMO         | WWAN + BT | WWAN + BT + UNII Ant.1 | WWAN + BT + UNII Ant.2 | WWAN + BT + UNII MIMO        |
|                        |               | 1                     | 2         | 3         | 4          | 5          | 6         | 7     | 1+2              | 1+3              | 1+2+3           | 1+4               | 1+5               | A&D : 1+4+5<br>B&C : 1+6 | 1+7       | 1+4+7                  | 1+5+7                  | A&D : 1+4+5+7<br>B&C : 1+6+7 |
| A : Head (1g-SAR)      | All position  | 0.185                 | 0.625     | 0.040     | 0.034      | 0.023      |           | 0.761 | 0.810            | 0.225            | 0.850           | 0.219             | 0.208             | 0.242                    | 0.946     | 0.980                  | 0.969                  | 1.003                        |
| B : Body-Worn (1g-SAR) | All position  | 0.342                 | 0.099     | 0.074     | 0.232      | 0.105      | 0.447     | 0.107 | 0.441            | 0.416            | 0.515           | 0.574             | 0.447             | 0.789                    | 0.449     | 0.681                  | 0.554                  | 0.896                        |
| C : Hotspot (1-g SAR)  | Rear          | 0.451                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.241 | 0.804            | 0.735            | 1.088           | 0.829             | 0.723             | 0.999                    | 0.692     | 1.070                  | 0.964                  | 1.240                        |
|                        | Front         | 0.348                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.109 | 0.701            | 0.632            | 0.985           | 0.726             | 0.620             | 0.896                    | 0.457     | 0.835                  | 0.729                  | 1.005                        |
|                        | Edge 1        |                       | 0.353     | 0.284     | 0.378      | 0.272      | 0.083     | 0.254 |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 2        | 0.364                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 3        | 0.258                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 4        | 0.248                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.049 | 0.601            | 0.532            | 0.885           | 0.626             | 0.520             | 0.796                    | 0.297     | 0.675                  | 0.569                  | 0.845                        |

#### Note(s):

- Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
- MIMO SAR test evaluated at Body-worn & Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

### 13.8 Sum of the SAR for LTE Band 25 & Wi-Fi & BT

| RF Exposure                          | Test Position | Standalone SAR (W/kg) |           |           |            |            |           |       | Σ SAR (W/kg)     |                  |                 |                   |                   |                          |           |                        |                        |                              |
|--------------------------------------|---------------|-----------------------|-----------|-----------|------------|------------|-----------|-------|------------------|------------------|-----------------|-------------------|-------------------|--------------------------|-----------|------------------------|------------------------|------------------------------|
|                                      |               | WWAN                  | DTS Ant.1 | DTS Ant.2 | UNII Ant.1 | UNII Ant.2 | UNII MIMO | BT    | WWAN + DTS Ant.1 | WWAN + DTS Ant.2 | WWAN + DTS MIMO | WWAN + UNII Ant.1 | WWAN + UNII Ant.2 | WWAN + UNII MIMO         | WWAN + BT | WWAN + BT + UNII Ant.1 | WWAN + BT + UNII Ant.2 | WWAN + BT + UNII MIMO        |
|                                      |               | 1                     | 2         | 3         | 4          | 5          | 6         | 7     | 1+2              | 1+3              | 1+2+3           | 1+4               | 1+5               | A&D : 1+4+5<br>B&C : 1+6 | 1+7       | 1+4+7                  | 1+5+7                  | A&D : 1+4+5+7<br>B&C : 1+6+7 |
| A : Head (1g-SAR)                    | All position  | 0.191                 | 0.625     | 0.040     | 0.034      | 0.023      |           | 0.761 | 0.816            | 0.231            | 0.856           | 0.225             | 0.214             | 0.248                    | 0.952     | 0.986                  | 0.975                  | 1.009                        |
| B : Body-Worn (1g-SAR)               | All position  | 0.865                 | 0.099     | 0.074     | 0.232      | 0.105      | 0.447     | 0.107 | 0.964            | 0.939            | 1.038           | 1.097             | 0.970             | 1.312                    | 0.972     | 1.204                  | 1.077                  | 1.419                        |
| C : Hotspot (1-g SAR)                | Rear          | 0.650                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.241 | 1.003            | 0.934            | 1.287           | 1.028             | 0.922             | 1.198                    | 0.891     | 1.269                  | 1.163                  | 1.439                        |
|                                      | Front         | 0.557                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.109 | 0.910            | 0.841            | 1.194           | 0.935             | 0.829             | 1.105                    | 0.666     | 1.044                  | 0.938                  | 1.214                        |
|                                      | Edge 1        |                       | 0.353     | 0.284     | 0.378      | 0.272      | 0.083     | 0.254 |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 2        | 0.135                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 3        | 1.339                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 4        | 0.129                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.049 | 0.482            | 0.413            | 0.766           | 0.507             | 0.401             | 0.677                    | 0.178     | 0.556                  | 0.450                  | 0.726                        |
| D : Product Specific 10-g (10-g SAR) | Rear          | 1.771                 |           |           | 0.913      | 0.520      |           |       |                  |                  |                 | 2.684             | 2.291             | 3.204                    |           |                        |                        |                              |
|                                      | Front         | 1.692                 |           |           | 0.913      | 0.520      |           |       |                  |                  |                 | 2.605             | 2.212             | 3.125                    |           |                        |                        |                              |
|                                      | Edge 1        |                       |           |           | 0.913      | 0.520      |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 2        |                       |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 3        | 1.976                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 4        |                       |           |           | 0.913      | 0.520      |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |

### 13.9 Sum of the SAR for LTE Band 26 & Wi-Fi & BT

| RF Exposure            | Test Position | Standalone SAR (W/kg) |           |           |            |            |           |       | Σ SAR (W/kg)     |                  |                 |                   |                   |                          |           |                        |                        |                              |
|------------------------|---------------|-----------------------|-----------|-----------|------------|------------|-----------|-------|------------------|------------------|-----------------|-------------------|-------------------|--------------------------|-----------|------------------------|------------------------|------------------------------|
|                        |               | WWAN                  | DTS Ant.1 | DTS Ant.2 | UNII Ant.1 | UNII Ant.2 | UNII MIMO | BT    | WWAN + DTS Ant.1 | WWAN + DTS Ant.2 | WWAN + DTS MIMO | WWAN + UNII Ant.1 | WWAN + UNII Ant.2 | WWAN + UNII MIMO         | WWAN + BT | WWAN + BT + UNII Ant.1 | WWAN + BT + UNII Ant.2 | WWAN + BT + UNII MIMO        |
|                        |               | 1                     | 2         | 3         | 4          | 5          | 6         | 7     | 1+2              | 1+3              | 1+2+3           | 1+4               | 1+5               | A&D : 1+4+5<br>B&C : 1+6 | 1+7       | 1+4+7                  | 1+5+7                  | A&D : 1+4+5+7<br>B&C : 1+6+7 |
| A : Head (1g-SAR)      | All position  | 0.373                 | 0.625     | 0.040     | 0.034      | 0.023      |           | 0.761 | 0.998            | 0.413            | 1.038           | 0.407             | 0.396             | 0.430                    | 1.134     | 1.168                  | 1.157                  | 1.191                        |
| B : Body-Worn (1g-SAR) | All position  | 0.530                 | 0.099     | 0.074     | 0.232      | 0.105      | 0.447     | 0.107 | 0.629            | 0.604            | 0.703           | 0.762             | 0.635             | 0.977                    | 0.637     | 0.869                  | 0.742                  | 1.084                        |
| C : Hotspot (1-g SAR)  | Rear          | 0.805                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.241 | 1.158            | 1.089            | 1.442           | 1.183             | 1.077             | 1.353                    | 1.046     | 1.424                  | 1.318                  | 1.594                        |
|                        | Front         | 0.665                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.109 | 1.018            | 0.949            | 1.302           | 1.043             | 0.937             | 1.213                    | 0.774     | 1.152                  | 1.046                  | 1.322                        |
|                        | Edge 1        |                       | 0.353     | 0.284     | 0.378      | 0.272      | 0.083     | 0.254 |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 2        | 0.503                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 3        | 0.481                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 4        | 0.206                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.049 | 0.559            | 0.490            | 0.843           | 0.584             | 0.478             | 0.754                    | 0.255     | 0.633                  | 0.527                  | 0.803                        |

### 13.10 Sum of the SAR for LTE Band 41 & Wi-Fi & BT

| RF Exposure            | Test Position | Standalone SAR (W/kg) |           |           |            |            |           |       | Σ SAR (W/kg)     |                  |                 |                   |                   |                          |           |                        |                        |                              |
|------------------------|---------------|-----------------------|-----------|-----------|------------|------------|-----------|-------|------------------|------------------|-----------------|-------------------|-------------------|--------------------------|-----------|------------------------|------------------------|------------------------------|
|                        |               | WWAN                  | DTS Ant.1 | DTS Ant.2 | UNII Ant.1 | UNII Ant.2 | UNII MIMO | BT    | WWAN + DTS Ant.1 | WWAN + DTS Ant.2 | WWAN + DTS MIMO | WWAN + UNII Ant.1 | WWAN + UNII Ant.2 | WWAN + UNII MIMO         | WWAN + BT | WWAN + BT + UNII Ant.1 | WWAN + BT + UNII Ant.2 | WWAN + BT + UNII MIMO        |
|                        |               | 1                     | 2         | 3         | 4          | 5          | 6         | 7     | 1+2              | 1+3              | 1+2+3           | 1+4               | 1+5               | A&D : 1+4+5<br>B&C : 1+6 | 1+7       | 1+4+7                  | 1+5+7                  | A&D : 1+4+5+7<br>B&C : 1+6+7 |
| A : Head (1g-SAR)      | All position  | 0.084                 | 0.625     | 0.040     | 0.034      | 0.023      |           | 0.761 | 0.709            | 0.124            | 0.749           | 0.118             | 0.107             | 0.141                    | 0.845     | 0.879                  | 0.868                  | 0.902                        |
| B : Body-Worn (1g-SAR) | All position  | 0.286                 | 0.099     | 0.074     | 0.232      | 0.105      | 0.447     | 0.107 | 0.385            | 0.360            | 0.459           | 0.518             | 0.391             | 0.733                    | 0.393     | 0.625                  | 0.498                  | 0.840                        |
| C : Hotspot (1-g SAR)  | Rear          | 0.477                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.241 | 0.830            | 0.761            | 1.114           | 0.855             | 0.749             | 1.025                    | 0.718     | 1.096                  | 0.990                  | 1.266                        |
|                        | Front         | 0.384                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.109 | 0.737            | 0.668            | 1.021           | 0.762             | 0.656             | 0.932                    | 0.493     | 0.871                  | 0.765                  | 1.041                        |
|                        | Edge 1        |                       | 0.353     | 0.284     | 0.378      | 0.272      | 0.083     | 0.254 |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 2        |                       |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 3        | 0.947                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                        | Edge 4        | 0.333                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.049 | 0.686            | 0.617            | 0.970           | 0.711             | 0.605             | 0.881                    | 0.382     | 0.760                  | 0.654                  | 0.930                        |

#### Note(s):

- Blue values are reference from highest SAR value of initial test position procedure in each RF exposure of each bands.
- MIMO SAR test evaluated at Body-worn & Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

### 13.11 Sum of the SAR for LTE Band 66 & Wi-Fi & BT

| RF Exposure                          | Test Position | Standalone SAR (W/kg) |           |           |            |            |           |       | Σ SAR (W/kg)     |                  |                 |                   |                   |                          |           |                        |                        |                              |
|--------------------------------------|---------------|-----------------------|-----------|-----------|------------|------------|-----------|-------|------------------|------------------|-----------------|-------------------|-------------------|--------------------------|-----------|------------------------|------------------------|------------------------------|
|                                      |               | WWAN                  | DTS Ant.1 | DTS Ant.2 | UNII Ant.1 | UNII Ant.2 | UNII MIMO | BT    | WWAN + DTS Ant.1 | WWAN + DTS Ant.2 | WWAN + DTS MIMO | WWAN + UNII Ant.1 | WWAN + UNII Ant.2 | WWAN + UNII MIMO         | WWAN + BT | WWAN + BT + UNII Ant.1 | WWAN + BT + UNII Ant.2 | WWAN + BT + UNII MIMO        |
|                                      |               | 1                     | 2         | 3         | 4          | 5          | 6         | 7     | 1+2              | 1+3              | 1+2+3           | 1+4               | 1+5               | A&D : 1+4+5<br>B&C : 1+6 | 1+7       | 1+4+7                  | 1+5+7                  | A&D : 1+4+5+7<br>B&C : 1+6+7 |
| A : Head (1g-SAR)                    | All position  | 0.289                 | 0.625     | 0.040     | 0.034      | 0.023      |           | 0.761 | 0.914            | 0.329            | 0.954           | 0.323             | 0.312             | 0.346                    | 1.050     | 1.084                  | 1.073                  | 1.107                        |
| B : Body-Worn (1g-SAR)               | All position  | 0.997                 | 0.099     | 0.074     | 0.232      | 0.105      | 0.447     | 0.107 | 1.096            | 1.071            | 1.170           | 1.229             | 1.102             | 1.444                    | 1.104     | 1.336                  | 1.209                  | 1.551                        |
| C : Hotspot (1-g SAR)                | Rear          | 0.713                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.241 | 1.066            | 0.997            | 1.350           | 1.091             | 0.985             | 1.261                    | 0.954     | 1.332                  | 1.226                  | 1.502                        |
|                                      | Front         | 0.627                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.109 | 0.980            | 0.911            | 1.264           | 1.005             | 0.899             | 1.175                    | 0.736     | 1.114                  | 1.008                  | 1.284                        |
|                                      | Edge 1        |                       | 0.353     | 0.284     | 0.378      | 0.272      | 0.083     | 0.254 |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 2        | 0.147                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 3        | 1.197                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 4        | 0.342                 | 0.353     | 0.284     | 0.378      | 0.272      | 0.548     | 0.049 | 0.695            | 0.626            | 0.979           | 0.720             | 0.614             | 0.890                    | 0.391     | 0.769                  | 0.663                  | 0.939                        |
| D : Product Specific 10-g (10-g SAR) | Rear          | 1.895                 |           |           | 0.913      | 0.520      |           |       |                  |                  |                 | 2.808             | 2.415             | 3.328                    |           |                        |                        |                              |
|                                      | Front         | 1.988                 |           |           | 0.913      | 0.520      |           |       |                  |                  |                 | 2.901             | 2.508             | 3.421                    |           |                        |                        |                              |
|                                      | Edge 1        |                       |           |           | 0.913      | 0.520      |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 2        |                       |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 3        | 2.558                 |           |           |            |            |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |
|                                      | Edge 4        |                       |           |           | 0.913      | 0.520      |           |       |                  |                  |                 |                   |                   |                          |           |                        |                        |                              |

#### Note(s):

- Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
- MIMO SAR test evaluated at Body-worn & Hotspot exposure conditions for determining simultaneous transmission SAR test exclusion.

### 13.12 Sum of the SAR for WWAN & Wi-Fi (RSDB)

| RF Exposure            | Test Position | Standalone SAR (W/kg) |           |           |            |            |          |           | Σ SAR (W/kg)                  |                               |                              |                               |                               |                              |                              |                              |                              |
|------------------------|---------------|-----------------------|-----------|-----------|------------|------------|----------|-----------|-------------------------------|-------------------------------|------------------------------|-------------------------------|-------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
|                        |               | WWAN                  | DTS Ant.1 | DTS Ant.2 | UNII Ant.1 | UNII Ant.2 | DTS MIMO | UNII MIMO | WWAN + DTS Ant.1 + UNII Ant.1 | WWAN + DTS Ant.1 + UNII Ant.2 | WWAN + DTS Ant.1 + UNII MIMO | WWAN + DTS Ant.2 + UNII Ant.1 | WWAN + DTS Ant.2 + UNII Ant.2 | WWAN + DTS Ant.2 + UNII MIMO | WWAN + DTS MIMO + UNII Ant.1 | WWAN + DTS MIMO + UNII Ant.2 | WWAN + DTS MIMO + UNII MIMO  |
|                        |               | 1                     | 2         | 3         | 4          | 5          | 6        | 7         | 1+2+4                         | 1+2+5                         | A : 1+2+4+5<br>B&C : 1+2+7   | 1+3+4                         | 1+3+5                         | A : 1+3+4+5<br>B&C : 1+3+7   | A : 1+2+3+4<br>B&C : 1+4+6   | A : 1+2+3+5<br>B&C : 1+5+6   | A : 1+2+3+4+5<br>B&C : 1+6+7 |
| A : Head (1g-SAR)      | All position  | 0.373                 | 0.625     | 0.040     | 0.034      | 0.023      |          |           | 1.032                         | 1.021                         | 1.055                        | 0.447                         | 0.436                         | 0.470                        | 1.072                        | 1.061                        | 1.095                        |
| B : Body-Worn (1g-SAR) | All position  | 1.011                 | 0.052     | 0.044     | 0.132      | 0.073      | 0.082    | 0.162     | 1.195                         | 1.136                         | 1.225                        | 1.187                         | 1.128                         | 1.217                        | 1.225                        | 1.166                        | 1.255                        |
| C : Hotspot (1-g SAR)  | Rear          | 0.805                 | 0.106     | 0.135     | 0.140      | 0.085      | 0.200    | 0.185     | 1.051                         | 0.996                         | 1.096                        | 1.080                         | 1.025                         | 1.125                        | 1.145                        | 1.090                        | 1.190                        |
|                        | Front         | 0.665                 | 0.106     | 0.135     | 0.140      | 0.085      | 0.200    | 0.185     | 0.911                         | 0.856                         | 0.956                        | 0.940                         | 0.885                         | 0.985                        | 1.005                        | 0.950                        | 1.050                        |
|                        | Edge 1        |                       | 0.106     | 0.135     | 0.140      | 0.085      | 0.200    | 0.185     |                               |                               |                              |                               |                               |                              |                              |                              |                              |
|                        | Edge 2        | 0.507                 |           |           |            |            |          |           |                               |                               |                              |                               |                               |                              |                              |                              |                              |
|                        | Edge 3        | 1.339                 |           |           |            |            |          |           |                               |                               |                              |                               |                               |                              |                              |                              |                              |
|                        | Edge 4        | 0.342                 | 0.106     | 0.135     | 0.140      | 0.085      | 0.200    | 0.185     | 0.588                         | 0.533                         | 0.633                        | 0.617                         | 0.562                         | 0.662                        | 0.682                        | 0.627                        | 0.727                        |

#### Note(s):

- Blue values are reference from highest SAR value of *initial test position* procedure in each RF exposure of each bands.

#### Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR (10-g SAR) is < 1.6 W/kg (4.0 W/kg).

## Appendixes

Refer to separated files for the following appendixes.

4789247752-S1V2 FCC Report SAR\_App A\_Photos & Ant. Locations

4789247752-S1V2 FCC Report SAR\_App B\_Highest SAR Test Plots

4789247752-S1V2 FCC Report SAR\_App C\_System Check Plots

4789247752-S1V2 FCC Report SAR\_App D\_SAR Tissue Ingredients

4789247752-S1V2 FCC Report SAR\_App E\_Probe Cal. Certificates

4789247752-S1V2 FCC Report SAR\_App F\_Dipole Cal. Certificates

END OF REPORT