



## **SAR EVALUATION REPORT**

**FCC 47 CFR § 2.1093  
IEEE Std 1528-2013**

*For*  
**CDMA/GSM/WCDMA/LTE PHONE + BLUETOOTH, DTS/UNII a/b/g/n/ac & NFC**

**FCC ID: ZNFH790  
Model Name: LG-H790, LGH790, H790**

**Report Number: 15I21235-S1  
Issue Date: 8/19/2015**

*Prepared for*  
**LG ELECTRONICS MOBILECOMM USA, INC.  
1000 SYLVAN AVENUE  
ENGLEWOOD CLIFFS, NEW JERSEY 07632, USA**

*Prepared by*  
**UL VERIFICATION SERVICES INC.  
47173 BENICIA STREET  
FREMONT, CA 94538, U.S.A.  
TEL: (510) 771-1000  
FAX: (510) 661-0888**



NVLAP LAB CODE 200065-0

**Revision History**

| Rev. | Date      | Revisions     | Revised By |
|------|-----------|---------------|------------|
| --   | 8/12/2015 | Initial Issue | --         |
|      |           |               |            |
|      |           |               |            |
|      |           |               |            |

## Table of Contents

|            |                                                                  |           |
|------------|------------------------------------------------------------------|-----------|
| <b>1.</b>  | <b>Attestation of Test Results .....</b>                         | <b>6</b>  |
| <b>2.</b>  | <b>Test Specification, Methods and Procedures.....</b>           | <b>7</b>  |
| <b>3.</b>  | <b>Facilities and Accreditation .....</b>                        | <b>7</b>  |
| <b>4.</b>  | <b>SAR Measurement System &amp; Test Equipment .....</b>         | <b>8</b>  |
| 4.1.       | SAR Measurement System.....                                      | 8         |
| 4.2.       | SAR Scan Procedures.....                                         | 9         |
| 4.3.       | Test Equipment.....                                              | 11        |
| <b>5.</b>  | <b>Measurement Uncertainty.....</b>                              | <b>12</b> |
| <b>6.</b>  | <b>Device Under Test (DUT) Information .....</b>                 | <b>12</b> |
| 6.1.       | DUT Description .....                                            | 12        |
| 6.2.       | Wireless Technologies.....                                       | 13        |
| 6.3.       | Nominal and Maximum Output Power.....                            | 14        |
| 6.4.       | General LTE SAR Test and Reporting Considerations.....           | 17        |
| 6.5.       | LTE (TDD) Considerations.....                                    | 21        |
| <b>7.</b>  | <b>RF Exposure Conditions (Test Configurations) .....</b>        | <b>22</b> |
| <b>8.</b>  | <b>Dielectric Property Measurements &amp; System Check .....</b> | <b>23</b> |
| 8.1.       | Dielectric Property Measurements .....                           | 23        |
| 8.2.       | System Check.....                                                | 29        |
| <b>9.</b>  | <b>Conducted Output Power Measurements.....</b>                  | <b>33</b> |
| 9.1.       | GSM .....                                                        | 33        |
| 9.2.       | W-CDMA .....                                                     | 35        |
| 9.3.       | CDMA.....                                                        | 41        |
| 9.4.       | LTE.....                                                         | 43        |
| 9.5.       | Wi-Fi 2.4GHz (DTS Band) .....                                    | 59        |
| 9.6.       | Wi-Fi 5GHz (U-NII Bands).....                                    | 60        |
| 9.7.       | Bluetooth .....                                                  | 61        |
| <b>10.</b> | <b>Measured and Reported (Scaled) SAR Results .....</b>          | <b>62</b> |
| 10.1.      | GSM850.....                                                      | 64        |
| 10.2.      | GSM1900.....                                                     | 64        |
| 10.4.      | W-CDMA Band II.....                                              | 65        |
| 10.5.      | W-CDMA Band IV .....                                             | 65        |
| 10.6.      | W-CDMA Band V .....                                              | 65        |
| 10.7.      | CDMA BC0.....                                                    | 66        |

|                   |                                                     |           |
|-------------------|-----------------------------------------------------|-----------|
| 10.8.             | CDMA BC1.....                                       | 66        |
| 10.9.             | CDMA BC10.....                                      | 67        |
| 10.10.            | LTE Band 2 (20MHz Bandwidth) .....                  | 67        |
| 10.11.            | LTE Band 4 (20MHz Bandwidth) .....                  | 68        |
| 10.12.            | LTE Band 5 (10MHz Bandwidth) .....                  | 68        |
| 10.13.            | LTE Band 7 (20MHz Bandwidth) .....                  | 69        |
| 10.14.            | LTE Band 12 (10MHz Bandwidth) .....                 | 69        |
| 10.15.            | LTE Band 13 (10MHz Bandwidth) .....                 | 70        |
| 10.16.            | LTE Band 17 (10MHz Bandwidth) .....                 | 70        |
| 10.17.            | LTE Band 25 (20MHz Bandwidth) .....                 | 71        |
| 10.18.            | LTE Band 26 (15MHz Bandwidth) .....                 | 72        |
| 10.19.            | LTE Band 41 (20MHz Bandwidth) .....                 | 72        |
| 10.20.            | Wi-Fi (DTS Band).....                               | 73        |
| 10.21.            | Wi-Fi (U-NII Band).....                             | 73        |
| 10.22.            | Bluetooth.....                                      | 73        |
| <b>11.</b>        | <b>SAR Measurement Variability.....</b>             | <b>74</b> |
| <b>12.</b>        | <b>Simultaneous Transmission SAR Analysis.....</b>  | <b>75</b> |
| 12.1.             | Sum of the SAR for GSM850 & Wi-Fi & BT .....        | 76        |
| 12.2.             | Sum of the SAR for GSM1900 & Wi-Fi & BT .....       | 76        |
| 12.3.             | Sum of the SAR for WCDMA Band II & Wi-Fi & BT ..... | 76        |
| 12.4.             | Sum of the SAR for WCDMA Band IV & Wi-Fi & BT ..... | 77        |
| 12.5.             | Sum of the SAR for WCDMA Band V & Wi-Fi & BT .....  | 77        |
| 12.6.             | Sum of the SAR for CDMA BC0 & Wi-Fi & BT .....      | 77        |
| 12.7.             | Sum of the SAR for CDMA BC1 & Wi-Fi & BT .....      | 78        |
| 12.8.             | Sum of the SAR for CDMA BC10 & Wi-Fi & BT .....     | 78        |
| 12.9.             | Sum of the SAR for LTE Band 2 & Wi-Fi & BT .....    | 79        |
| 12.10.            | Sum of the SAR for LTE Band 4 & Wi-Fi & BT .....    | 79        |
| 12.11.            | Sum of the SAR for LTE Band 5 & Wi-Fi & BT .....    | 79        |
| 12.12.            | Sum of the SAR for LTE Band 7 & Wi-Fi & BT .....    | 80        |
| 12.13.            | Sum of the SAR for LTE Band 12 & Wi-Fi & BT .....   | 80        |
| 12.14.            | Sum of the SAR for LTE Band 13 & Wi-Fi & BT .....   | 80        |
| 12.15.            | Sum of the SAR for LTE Band 17 & Wi-Fi & BT .....   | 80        |
| 12.16.            | Sum of the SAR for LTE Band 25 & Wi-Fi & BT .....   | 81        |
| 12.17.            | Sum of the SAR for LTE Band 26 & Wi-Fi & BT .....   | 81        |
| 12.18.            | Sum of the SAR for LTE Band 41 & Wi-Fi & BT .....   | 81        |
| <b>Appendixes</b> | <b>.....</b>                                        | <b>92</b> |

|                                                           |           |
|-----------------------------------------------------------|-----------|
| <i>A_15I21235v0 SAR Photos &amp; Ant. Locations .....</i> | <i>92</i> |
| <i>B_15I21235v0 SAR System Check Plots .....</i>          | <i>92</i> |
| <i>C_15I21235v0 SAR Highest Test Plots .....</i>          | <i>92</i> |
| <i>D_15I21235v0 SAR Tissue Ingredients.....</i>           | <i>92</i> |
| <i>E_15I21235v0 SAR Probe Cal. Certificates.....</i>      | <i>92</i> |
| <i>F_15I21235v0 SAR Dipole Cal. Certificates .....</i>    | <i>92</i> |

## 1. Attestation of Test Results

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                   |                                                                                      |              |                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------|-----------------|
| Applicant Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | LG ELECTRONICS MOBILECOMM USA, INC.                                               |                                                                                      |              |                 |
| FCC ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ZNFH790                                                                           |                                                                                      |              |                 |
| Model Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | LG-H790, LGH790, H790                                                             |                                                                                      |              |                 |
| Applicable Standards                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | FCC 47 CFR § 2.1093<br>Published RF exposure KDB procedures<br>IEEE Std 1528-2013 |                                                                                      |              |                 |
| <b>SAR Limits (W/Kg)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                   |                                                                                      |              |                 |
| Exposure Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Peak spatial-average(1g of tissue)                                                |                                                                                      |              |                 |
| General population /<br>Uncontrolled exposure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1.6                                                                               |                                                                                      |              |                 |
| <b>The Highest Reported SAR (W/kg)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                   |                                                                                      |              |                 |
| <b>RF Exposure Conditions</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Equipment Class</b>                                                            |                                                                                      |              |                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Licensed</b>                                                                   | <b>DTS</b>                                                                           | <b>U-NII</b> | <b>DSS (BT)</b> |
| Head                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1.251                                                                             | 0.787                                                                                | 0.769        | 0.182           |
| Body-worn*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1.280                                                                             | 0.315                                                                                | 0.365        | 0.064           |
| Hotspot/Wi-Fi Direct                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                   |                                                                                      | 0.368        | N/A             |
| Simultaneous Tx                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1.539                                                                             | 1.489                                                                                | 1.539        | 1.539           |
| Date Tested                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 7/8/2015 to 7/17/2015                                                             |                                                                                      |              |                 |
| Test Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Pass                                                                              |                                                                                      |              |                 |
| <p>UL Verification Services Inc. 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 Verification Services Inc. 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 Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. 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 NVLAP, NIST, any agency of the Federal Government, or any agency of any government (NIST Handbook 150, Annex A). This report is written to support regulatory compliance of the applicable standards stated above.</p> |                                                                                   |                                                                                      |              |                 |
| Approved & Released By:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                   | Prepared By:                                                                         |              |                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                   |  |              |                 |
| Devin Chang<br>Senior Engineer<br>UL Verification Services Inc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                   | Coltyce Sanders<br>Laboratory Engineer<br>UL Verification Services Inc.              |              |                 |

## 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, the following FCC Published RF exposure [KDB](#) procedures:

- 248227 D01 802.11 Wi-Fi SAR v02
- 447498 D01 General RF Exposure Guidance v05r02
- 648474 D04 Handset SAR v01r02
- 690783 D01 SAR Listings on Grants v01r03
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r03
- 865664 D02 RF Exposure Reporting v01r01
- 941225 D01 3G SAR Procedures v03
- 941225 D02: HSPA and 1x Advanced v02r02
- 941225 D03: SAR Test Reduction GSM GPRS EDGE v01
- 941225 D05 SAR for LTE Devices v02r03
- 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r01
- 941225 D06 Hotspot Mode v02

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

- [TCB workshop](#) October, 2014; Page 36, RF Exposure Procedures Update

## 3. Facilities and Accreditation

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

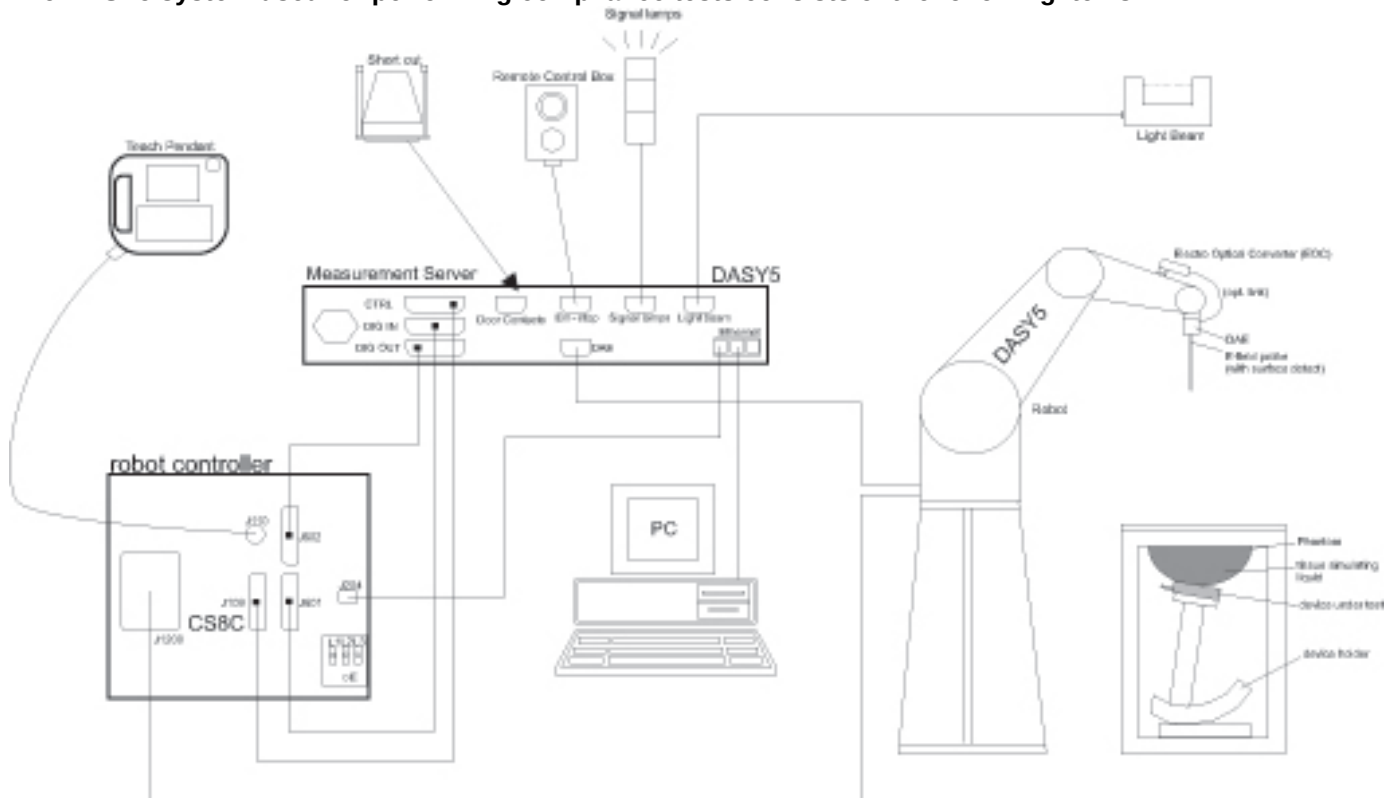
| 47173 Benicia Street | 47266 Benicia Street |
|----------------------|----------------------|
| SAR Lab A            | SAR Lab 1            |
| SAR Lab B            | SAR Lab 2            |
| SAR Lab C            | SAR Lab 3            |
| SAR Lab D            | SAR Lab 4            |
| SAR Lab E            | SAR Lab 5            |
| SAR Lab F            |                      |
| SAR Lab G            |                      |
| SAR Lab H            |                      |

UL Verification Services Inc. is accredited by [NVLAP](#), Laboratory Code 200065-0.

## 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: $\Delta x_{\text{Area}}, \Delta y_{\text{Area}}$                 | $\leq 2$ 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 area scan based <i>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         | E753ES        | MY40000980    | 4/17/2016     |
| Dielectric Probe kit | SPEAG           | DAK-3.5       | 1082          | 9/16/2015     |
| Shorting block       | SPEAG           | DAK-3.5 Short | SM DAK 200 BA | N/A           |
| Thermometer          | Control Company | Traceable     | 122529163     | 10/8/2015     |

#### System Check

| Name of Equipment                        | Manufacturer    | Type/Model             | Serial No.  | Cal. Due Date |
|------------------------------------------|-----------------|------------------------|-------------|---------------|
| Synthesized Signal Generator             | Agilent         | 8665B                  | 3438A00633  | 8/29/2015     |
| Power Meter                              | HP              | 437B                   | 3125U09516  | 8/27/2015     |
| Power Meter                              | HP              | 437B                   | 3125U11347  | 10/6/2015     |
| Power Sensor                             | HP              | 8481A                  | 3318A95392  | 10/6/2015     |
| Power Sensor                             | HP              | 8481A                  | 1926A16917  | 10/10/2015    |
| Amplifier                                | MITEQ           | AMF-4D-00400600-50-30P | 1808938     | N/A           |
| Bi-directional coupler                   | Werlatone, Inc. | C8060-102              | 2710        | N/A           |
| DC Power Supply                          | HP              | 6296A                  | 2841A-05955 | N/A           |
| E-Field Probe (SAR Lab 1)                | SPEAG           | EX3DV4                 | 3929        | 4/22/2016     |
| E-Field Probe (SAR Lab 1)                | SPEAG           | EX3DV4                 | 7356        | 4/22/2016     |
| E-Field Probe (SAR Lab 2)                | SPEAG           | EX3DV4                 | 3990        | 3/18/2016     |
| E-Field Probe (SAR Lab 3)                | SPEAG           | EX3DV4                 | 3749        | 1/26/2016     |
| E-Field Probe (SAR Lab 4)                | SPEAG           | EX3DV4                 | 3989        | 3/17/2016     |
| E-Field Probe (SAR Lab 5)                | SPEAG           | EX3DV4                 | 3773        | 4/22/2016     |
| Data Acquisition Electronics (SAR Lab 1) | SPEAG           | DAE4                   | 1352        | 11/7/2015     |
| Data Acquisition Electronics (SAR Lab 2) | SPEAG           | DAE4                   | 1259        | 1/14/2016     |
| Data Acquisition Electronics (SAR Lab 3) | SPEAG           | DAE4                   | 1434        | 4/16/2016     |
| Data Acquisition Electronics (SAR Lab 4) | SPEAG           | DAE4                   | 1377        | 8/27/2015     |
| Data Acquisition Electronics (SAR Lab 5) | SPEAG           | DAE4                   | 1239        | 4/16/2016     |
| System Validation Dipole                 | SPEAG           | D750V3                 | 1071        | 11/13/2015    |
| System Validation Dipole                 | SPEAG           | D835V2                 | 4d142       | 9/9/2015      |
| System Validation Dipole                 | SPEAG           | D835V2                 | 4d117       | 5/18/2016     |
| System Validation Dipole                 | SPEAG           | D1750V2                | 1077        | 9/11/2015     |
| System Validation Dipole                 | SPEAG           | D1900V2                | 5d163       | 9/11/2015     |
| System Validation Dipole                 | SPEAG           | D2450V2                | 706         | 5/11/2016     |
| System Validation Dipole                 | SPEAG           | D2600V2                | 1036        | 3/13/2016     |
| System Validation Dipole                 | SPEAG           | D5GHzV2                | 1168        | 12/4/2015     |
| Thermometer (SAR Lab 1)                  | EXTECH          | 445703                 | CCS-205     | 3/20/2016     |
| Thermometer (SAR Lab 2)                  | EXTECH          | 445703                 | CCS-203     | 3/19/2016     |
| Thermometer (SAR Lab 3)                  | EXTECH          | 445703                 | CCS-237     | 6/5/2016      |
| Thermometer (SAR Lab 4)                  | EXTECH          | 445703                 | CCS-238     | 6/5/2016      |
| Thermometer (SAR Lab 5)                  | EXTECH          | 445703                 | CCS-239     | 6/5/2016      |

#### Other

| Name of Equipment      | Manufacturer | Type/Model | Serial No. | Cal. Due Date |
|------------------------|--------------|------------|------------|---------------|
| Power Meter            | Agilent      | N1912A     | MY53060007 | 9/15/2015     |
| Power Meter            | Agilent      | N1912A     | MY53060002 | 4/7/2016      |
| Power Sensor           | Agilent      | N1921A     | MY53260011 | 6/1/2016      |
| Power Sensor           | Agilent      | N1921A     | MY52260009 | 12/12/2015    |
| Base Station Simulator | R & S        | CMW500     | 132910     | 10/16/2015    |
| Base Station Simulator | R & S        | CMW500     | 135384     | 6/18/2016     |
| Base Station Simulator | R & S        | CBT        | 100900     | 6/30/2016     |
| Base Station Simulator | Agilent      | 8960       | MY53211024 | 9/19/2015     |

## 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, the 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          | Overall (Length x Width): 146.9 mm x 72.5 mm<br>Overall Diagonal: 156 mm<br>Display Diagonal: 133 mm                                                                                                                                                      |                    |                       |
| Back Cover                | <input checked="" type="checkbox"/> The rechargeable battery is not user accessible.                                                                                                                                                                      |                    |                       |
| Battery Options           | <input checked="" type="checkbox"/> The rechargeable battery is not user accessible.                                                                                                                                                                      |                    |                       |
| Accessory                 | Headset                                                                                                                                                                                                                                                   |                    |                       |
| 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) |                    |                       |
| 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 5.2 and 5.8 GHz)                                    |                    |                       |
| Test sample information   | <b>S/N</b>                                                                                                                                                                                                                                                | <b>IMEI</b>        | <b>Notes</b>          |
|                           | 1ZC4X                                                                                                                                                                                                                                                     | 353626-07-000575-1 | LTE SAR SAMPLE        |
|                           | 1ZC4W                                                                                                                                                                                                                                                     | 353626-07-000574-4 | LTE SAR SAMPLE        |
|                           | 1ZC4U                                                                                                                                                                                                                                                     | 353626-07-000572-8 | 2G/3G SAR SAMPLE      |
|                           | 1ZC4V                                                                                                                                                                                                                                                     | 353626-07-000573-6 | 2G/3G SAR SAMPLE      |
|                           | 1ZC4S                                                                                                                                                                                                                                                     | 353626-07-000570-2 | WLAN SAR SAMPLE       |
|                           | 1ZC4T                                                                                                                                                                                                                                                     | 353626-07-000571-0 | WLAN SAR SAMPLE       |
|                           | 1ZC4Y                                                                                                                                                                                                                                                     | 353626-07-000567-8 | WLAN CONDUCTED SAMPLE |
|                           | 1ZC4Z                                                                                                                                                                                                                                                     | 353626-07-000566-0 | WLAN CONDUCTED SAMPLE |
| Hardware Version          | LG-H790, LGH790, H790                                                                                                                                                                                                                                     |                    |                       |
| Software Version          | N/A                                                                                                                                                                                                                                                       |                    |                       |

## 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 checked="" type="checkbox"/> Class 12 - 4 Up, 4 Down<br><input 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% |
|                       | <input type="checkbox"/> Class A = Can be connected to GPRS service and GSM service (voice, SMS), using both at the same time.<br>Does this device support DTM (Dual Transfer Mode)? <input type="checkbox"/> Yes <input type="checkbox"/> No<br><input checked="" type="checkbox"/> Class B = GPRS connection interrupted during a GSM call, automatically resumed at end of call.<br><input type="checkbox"/> Class C = manual GSM / GPRS mode switching. |                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                  |                                                                                              |
| CDMA<br>(CDMA2000)    | BC0<br>BC1<br>BC10                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1xRTT (Voice & Data)<br>1xEV-DO Rel. 0<br>1xEV-DO Rev. A<br>1xAdvanced                                                                                                                                                                                                       |                                                                                                                                                                                                                                                  | 100%                                                                                         |
|                       | Does this device support SV-DO (1xRTT-1xEVDO)? <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 (Rel. 5)<br>HSUPA (Rel. 6)<br>DC-HSDPA (Rel. 8)<br>HSPA+ (Rel. 7)                                                                                                                                                                       |                                                                                                                                                                                                                                                  | 100%                                                                                         |
| LTE                   | FDD Band 2<br>FDD Band 4<br>FDD Band 5<br>FDD Band 7<br>FDD Band 12<br>FDD Band 13<br>FDD Band 17<br>FDD Band 25<br>FDD Band 26<br>FDD Band 29 (Rx Only)<br>TDD Band 41                                                                                                                                                                                                                                                                                     | QPSK<br>16QAM<br><input type="checkbox"/> Rel. 10 Does not support Carrier Aggregation (CA)<br><input checked="" type="checkbox"/> Rel. 10 Carrier Aggregation (1 Uplink and 2 Downlinks)<br><input type="checkbox"/> Rel. 11 Carrier Aggregation (2 Uplink and 2 Downlinks) |                                                                                                                                                                                                                                                  | 100% (FDD)<br>63.3% (TDD)                                                                    |
|                       | 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>802.11ac (VHT20)                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                  | 100%                                                                                         |
|                       | 5 GHz                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 802.11a<br>802.11n (HT20)<br>802.11n (HT40)<br>802.11ac (VHT20)<br>802.11ac (VHT40)<br>802.11ac (VHT80)                                                                                                                                                                      |                                                                                                                                                                                                                                                  | 100%                                                                                         |
|                       | Does this device support bands 5.60 ~ 5.65 GHz? <input type="checkbox"/> Yes <input checked="" 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 4.2 LE                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                  | 77.5% (DH5)                                                                                  |

### 6.3. Nominal and Maximum Output Power

KDB 447498 sec.4.1.(3) 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

| Upper limit (dB): -1.5 ~ 0.5 |                | Max. RF Output Power (dBm) |                              |             |
|------------------------------|----------------|----------------------------|------------------------------|-------------|
| RF Air interface             | Mode           | Target                     | Max. tune-up tolerance limit |             |
|                              |                |                            | Burst                        | Frame       |
| GSM850                       | Voice (1 slot) | 32.7                       | <b>33.2</b>                  | <b>24.2</b> |
|                              | GPRS 1 slot    | 32.7                       | <b>33.2</b>                  | <b>24.2</b> |
|                              | GPRS 2 slots   | 30.7                       | <b>31.2</b>                  | <b>25.2</b> |
|                              | GPRS 3 slots   | 28.7                       | <b>29.2</b>                  | <b>24.9</b> |
|                              | GPRS 4 slots   | 27.7                       | <b>28.2</b>                  | <b>25.2</b> |
|                              | EGPRS 1 slot   | 26.7                       | <b>27.2</b>                  | <b>18.2</b> |
|                              | EGPRS 2 slots  | 25.7                       | <b>26.2</b>                  | <b>20.2</b> |
|                              | EGPRS 3 slots  | 24.7                       | <b>25.2</b>                  | <b>20.9</b> |
|                              | EGPRS 4 slots  | 23.7                       | <b>24.2</b>                  | <b>21.2</b> |
| GSM1900                      | Voice (1 slot) | 29.2                       | <b>29.7</b>                  | <b>20.7</b> |
|                              | GPRS 1 slot    | 29.2                       | <b>29.7</b>                  | <b>20.7</b> |
|                              | GPRS 2 slots   | 27.2                       | <b>27.7</b>                  | <b>21.7</b> |
|                              | GPRS 3 slots   | 25.2                       | <b>25.7</b>                  | <b>21.4</b> |
|                              | GPRS 4 slots   | 24.2                       | <b>24.7</b>                  | <b>21.7</b> |
|                              | EGPRS 1 slot   | 25.2                       | <b>25.7</b>                  | <b>16.7</b> |
|                              | EGPRS 2 slots  | 24.2                       | <b>24.7</b>                  | <b>18.7</b> |
|                              | EGPRS 3 slots  | 23.2                       | <b>23.7</b>                  | <b>19.4</b> |
|                              | EGPRS 4 slots  | 22.2                       | <b>22.7</b>                  | <b>19.7</b> |

| Upper limit (dB): -1.5 ~ 0.5 |          | Max. RF Output Power (dBm) |                              |
|------------------------------|----------|----------------------------|------------------------------|
| RF Air interface             | Mode     | Target                     | Max. tune-up tolerance limit |
| W-CDMA Band II               | R99      | 23.4                       | <b>23.9</b>                  |
|                              | HSDPA    | 23.4                       | <b>23.9</b>                  |
|                              | HSUPA    | 23.4                       | <b>23.9</b>                  |
|                              | DC-HSDPA | 23.4                       | <b>23.9</b>                  |
| W-CDMA Band IV               | R99      | 23.4                       | <b>23.9</b>                  |
|                              | HSDPA    | 23.4                       | <b>23.9</b>                  |
|                              | HSUPA    | 23.4                       | <b>23.9</b>                  |
|                              | DC-HSDPA | 23.4                       | <b>23.9</b>                  |
| W-CDMA Band V                | R99      | 24.2                       | <b>24.7</b>                  |
|                              | HSDPA    | 24.2                       | <b>24.7</b>                  |
|                              | HSUPA    | 24.2                       | <b>24.7</b>                  |
|                              | DC-HSDPA | 24.2                       | <b>24.7</b>                  |

| Upper limit (dB): -1.5 ~ 0.5 |               | Max. RF Output Power (dBm) |                              |
|------------------------------|---------------|----------------------------|------------------------------|
| RF Air interface             | Mode          | Target                     | Max. tune-up tolerance limit |
| CDMA BC0                     | 1xRTT         | 24.2                       | <b>24.7</b>                  |
|                              | 1xAdvanced    | 24.2                       | <b>24.7</b>                  |
|                              | 1xEVDO Rel. 0 | 24.2                       | <b>24.7</b>                  |
|                              | 1xEVDO Rev. A | 24.2                       | <b>24.7</b>                  |
| CDMA BC1                     | 1xRTT         | 24.2                       | <b>24.7</b>                  |
|                              | 1xAdvanced    | 24.2                       | <b>24.7</b>                  |
|                              | 1xEVDO Rel. 0 | 23.2                       | <b>23.7</b>                  |
|                              | 1xEVDO Rev. A | 23.2                       | <b>23.7</b>                  |
| CDMA BC10                    | 1xRTT         | 24.2                       | <b>24.7</b>                  |
|                              | 1xAdvanced    | 24.2                       | <b>24.7</b>                  |
|                              | 1xEVDO Rel. 0 | 24.2                       | <b>24.7</b>                  |
|                              | 1xEVDO Rev. A | 24.2                       | <b>24.7</b>                  |
| LTE Band 2                   | QPSK          | 22.9                       | <b>23.4</b>                  |
|                              | 16QAM         | 21.9                       | <b>22.4</b>                  |
| LTE Band 4                   | QPSK          | 22.9                       | <b>23.4</b>                  |
|                              | 16QAM         | 21.9                       | <b>22.4</b>                  |
| LTE Band 5                   | QPSK          | 23.7                       | <b>24.2</b>                  |
|                              | 16QAM         | 22.7                       | <b>23.2</b>                  |
| LTE Band 7                   | QPSK          | 23.2                       | <b>23.7</b>                  |
|                              | 16QAM         | 22.2                       | <b>22.7</b>                  |
| LTE Band 12                  | QPSK          | 23.7                       | <b>24.2</b>                  |
|                              | 16QAM         | 22.7                       | <b>23.2</b>                  |
| LTE Band 13                  | QPSK          | 23.7                       | <b>24.2</b>                  |
|                              | 16QAM         | 22.7                       | <b>23.2</b>                  |
| LTE Band 17                  | QPSK          | 23.7                       | <b>24.2</b>                  |
|                              | 16QAM         | 22.7                       | <b>23.2</b>                  |
| LTE Band 25                  | QPSK          | 22.9                       | <b>23.4</b>                  |
|                              | 16QAM         | 21.9                       | <b>22.4</b>                  |
| LTE Band 26                  | QPSK          | 23.7                       | <b>24.2</b>                  |
|                              | 16QAM         | 22.7                       | <b>23.2</b>                  |
| LTE Band 41                  | QPSK          | 22.7                       | <b>23.2</b>                  |
|                              | 16QAM         | 21.7                       | <b>22.2</b>                  |

\*LTE Carrier Aggregation shares identical target power and tune-up tolerance as noted above

| Upper limit (dB): 1.0 |                | Max. RF Output Power (dBm) |        |                              |
|-----------------------|----------------|----------------------------|--------|------------------------------|
| RF Air interface      | Mode           | CH.                        | Target | Max. tune-up tolerance limit |
| WiFi 2.4 GHz          | 802.11b        | All                        | 17.0   | <b>18.0</b>                  |
|                       | 802.11g        | 1 and 11                   | 14.5   | <b>15.5</b>                  |
|                       |                | 2-10                       | 15.5   | <b>16.5</b>                  |
|                       | 802.11n HT20   | 1 and 11                   | 14.5   | <b>15.5</b>                  |
|                       |                | 2-10                       | 15.5   | <b>16.5</b>                  |
|                       | 802.11ac VHT20 | 1 and 11                   | 14.5   | <b>15.5</b>                  |
|                       |                | 2-10                       | 15.5   | <b>16.5</b>                  |
| WiFi 5 GHz            | 802.11a        | All                        | 14.0   | <b>15.0</b>                  |
|                       | 802.11n HT20   | All                        | 13.5   | <b>14.5</b>                  |
|                       | 802.11n HT40   | All                        | 11.5   | <b>12.5</b>                  |
|                       | 802.11ac VHT20 | All                        | 13.5   | <b>14.5</b>                  |
|                       | 802.11ac VHT40 | All                        | 11.5   | <b>12.5</b>                  |
|                       | 802.11ac VHT80 | All                        | 10.5   | <b>11.5</b>                  |
| Bluetooth             |                | All                        | 8.9    | <b>9.9</b>                   |
| Bluetooth LE          |                | All                        | 1.0    | <b>2.0</b>                   |

## 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 7      | Frequency range: 2500 - 2570 MHz |                  |                  |                  |                  |                  |
|                                                             |             | Channel Bandwidth                |                  |                  |                  |                  |                  |
|                                                             |             | 20 MHz                           | 15 MHz           | 10 MHz           | 5 MHz            | 3 MHz            | 1.4 MHz          |
|                                                             | Low         | 20850<br>2510                    | 20825<br>2507.5  | 20800<br>2505    | 20775<br>2502.5  |                  |                  |
|                                                             | Mid         | 21100<br>2535                    | 21100<br>2535    | 21100<br>2535    | 21100<br>2535    |                  |                  |
|                                                             | High        | 21350<br>2560                    | 21375<br>2562.5  | 21400<br>2565    | 21425<br>2567.5  |                  |                  |
|                                                             | Band 12     | Frequency range: 699 – 716 MHz   |                  |                  |                  |                  |                  |
|                                                             |             | Channel Bandwidth                |                  |                  |                  |                  |                  |
|                                                             |             | 20 MHz                           | 15 MHz           | 10 MHz           | 5 MHz            | 3 MHz            | 1.4 MHz          |
|                                                             | Low         |                                  |                  |                  | 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        |                                  |                  |                  | 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  |                  |                  |

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

|                                                             |          |                                  |                  |                  |                  |                  |                  |
|-------------------------------------------------------------|----------|----------------------------------|------------------|------------------|------------------|------------------|------------------|
| Frequency range, Channel Bandwidth, Numbers and Frequencies | Band 17  | Frequency range: 704 - 716 MHz   |                  |                  |                  |                  |                  |
|                                                             |          | Channel Bandwidth                |                  |                  |                  |                  |                  |
|                                                             |          | 20 MHz                           | 15 MHz           | 10 MHz           | 5 MHz            | 3 MHz            | 1.4 MHz          |
|                                                             | Low      |                                  |                  |                  | 23755/<br>706.5  |                  |                  |
|                                                             | Mid      |                                  |                  | 23790/<br>710    | 23790/<br>710    |                  |                  |
|                                                             | High     |                                  |                  |                  | 23825/<br>713.5  |                  |                  |
|                                                             | 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/<br>2506.0                 | 39725/<br>2503.5 | 39700/<br>2501   | 39675/<br>2498.5 |                  |                  |
|                                                             | Low-Mid  | 40185/<br>2549.5                 | 40173/<br>2548.3 | 40160/<br>2547.0 | 40148/<br>2545.8 |                  |                  |
|                                                             | Mid      | 40620/<br>2593.0                 | 40620/<br>2593.0 | 40620/<br>2593.0 | 40620/<br>2593.0 |                  |                  |
|                                                             | Mid-High | 41055/<br>2636.5                 | 41068/<br>2547.8 | 41080/<br>2639.0 | 41093/<br>2640.3 |                  |                  |
|                                                             | High     | 41490/<br>2680.0                 | 41515/<br>2682.5 | 41540/<br>2685.0 | 41565/<br>2687.5 |                  |                  |

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

|                                                                                                | Primary<br>Channel Bandwidth (MHz) |                       | Secondary<br>Channel Bandwidth (MHz) |                       |
|------------------------------------------------------------------------------------------------|------------------------------------|-----------------------|--------------------------------------|-----------------------|
|                                                                                                | Band                               | Bandwidth (MHz)       | Band                                 | Bandwidth (MHz)       |
| Carrier Aggregation Combinations<br>(For supported channels, please refer to the tables above) | Band 2                             | 20, 15, 10, 5         | Band 13                              | 10                    |
|                                                                                                | Band 4                             | 20, 15, 10, 5         | Band 13                              | 10                    |
|                                                                                                | Band 13                            | 10                    | Band 2                               | 20, 15, 10, 5         |
|                                                                                                | Band 13                            | 10                    | Band 4                               | 20, 15, 10, 5         |
|                                                                                                | Band 2                             | 20, 15, 10, 5, 3, 1.4 | Band 4                               | 20, 15, 10, 5         |
|                                                                                                | Band 4                             | 20, 15, 10, 5         | Band 2                               | 20, 15, 10, 5, 3, 1.4 |
|                                                                                                | Band 2                             | 10, 5                 | Band 17                              | 10, 5                 |
|                                                                                                | Band 17                            | 10, 5                 | Band 2                               | 10, 5                 |
|                                                                                                | Band 4                             | 10, 5                 | Band 17                              | 10, 5                 |
|                                                                                                | Band 17                            | 10, 5                 | Band 4                               | 10, 5                 |
|                                                                                                | Band 2                             | 20, 15, 10, 5         | Band 29                              | 10, 5, 3              |
|                                                                                                | Band 4                             | 20, 15, 10, 5         | Band 29                              | 10, 5, 3              |
|                                                                                                | Band 2                             | 20, 15, 10, 5         | Band 5                               | 10, 5                 |
|                                                                                                | Band 5                             | 10, 5                 | Band 2                               | 20, 15, 10, 5         |
|                                                                                                | Band 4                             | 20, 15, 10, 5         | Band 5                               | 10, 5                 |
|                                                                                                | Band 5                             | 10, 5                 | Band 4                               | 20, 15, 10, 5         |
|                                                                                                | Band 2                             | 20, 15, 10, 5         | Band 12                              | 10, 5, 3              |
|                                                                                                | Band 12                            | 10, 5, 3              | Band 2                               | 20, 15, 10, 5         |
|                                                                                                | Band 4                             | 20, 15, 10, 5, 3, 1.4 | Band 12                              | 10, 5, 3              |
|                                                                                                | Band 12                            | 10, 5, 3              | Band 4                               | 20, 15, 10, 5, 3, 1.4 |
|                                                                                                | Band 4                             | 10, 5                 | Band 7                               | 20, 15, 10, 5         |
|                                                                                                | Band 7                             | 20, 15, 10, 5         | Band 4                               | 10, 5                 |
|                                                                                                | Band 2                             | 20, 15, 10, 5         | Band 2                               | 20, 15, 10, 5         |
|                                                                                                | Band 4                             | 20, 15, 10, 5         | Band 4                               | 20, 15, 10, 5         |
|                                                                                                | Band 41                            | 20, 15, 10, 5         | Band 41                              | 20, 15, 10, 5         |

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

| LTE transmitter and antenna implementation                     | LTE Bands 2/4/25/41 have one (1) Tx/Rx antenna<br>LTE Bands 5/7/12/13/17/26 have one (1) Tx/Rx antenna<br>LTE Bands 2/4/5/12/13/17/25/26 have one (1) Rx antenna<br>LTE Bands 7/41 have one (1) Rx antenna<br>Refer to Appendix A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                |       |        |        |        |          |  |  |            |                                                 |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |
|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-------|--------|--------|--------|----------|--|--|------------|-------------------------------------------------|--|--|--|--|--|----------|---------|---------|-------|--------|--------|--------|------|-----|-----|-----|------|------|------|-----|--------|-----|-----|-----|------|------|------|-----|--------|-----|-----|-----|------|------|------|-----|
| Maximum power reduction (MPR)                                  | <table><tr><th colspan="8">Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3</th></tr><tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (RB)</th><th rowspan="2">MPR (dB)</th></tr><tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr><tr><td>QPSK</td><td>&gt; 5</td><td>&gt; 4</td><td>&gt; 8</td><td>&gt; 12</td><td>&gt; 16</td><td>&gt; 18</td><td>≤ 1</td></tr><tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr><tr><td>64 QAM</td><td>&gt; 5</td><td>&gt; 4</td><td>&gt; 8</td><td>&gt; 12</td><td>&gt; 16</td><td>&gt; 18</td><td>≤ 2</td></tr></table> <p>MPR Built-in by design</p> <p>A-MPR (additional MPR) was disabled during SAR testing</p> | Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3 |       |        |        |        |          |  |  | Modulation | Channel bandwidth / Transmission bandwidth (RB) |  |  |  |  |  | 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 | 64 QAM | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 2 |
| Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                |       |        |        |        |          |  |  |            |                                                 |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |
| Modulation                                                     | Channel bandwidth / Transmission bandwidth (RB)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                |       |        |        |        | 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      |  |  |            |                                                 |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |
| 64 QAM                                                         | > 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | > 4                                                            | > 8   | > 12   | > 16   | > 18   | ≤ 2      |  |  |            |                                                 |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |
| Power reduction                                                | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                |       |        |        |        |          |  |  |            |                                                 |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                |       |        |        |        |          |  |  |            |                                                 |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |

## 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.

SAR was tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7.

LTE TDD Band 41 supports 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                              | $26336 \cdot T_s$                |                                |                                  | $7680 \cdot T_s$                   |                                |                                  |
| 5                              | $6592 \cdot T_s$                 | $4384 \cdot T_s$               | $5120 \cdot T_s$                 | $20480 \cdot T_s$                  | $4384 \cdot T_s$               | $5120 \cdot T_s$                 |
| 6                              | $19760 \cdot T_s$                |                                |                                  | $23040 \cdot T_s$                  |                                |                                  |
| 7                              | $21952 \cdot T_s$                |                                |                                  | $12800 \cdot T_s$                  |                                |                                  |
| 8                              | $24144 \cdot T_s$                |                                |                                  | -                                  | -                              | -                                |
| 9                              | $13168 \cdot T_s$                |                                |                                  | -                                  | -                              | -                                |

### 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

## 7. RF Exposure Conditions (Test Configurations)

Refer to “SAR Photos and Ant locations” Appendix for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.

| Wireless technologies | RF Exposure Conditions | DUT-to-User Separation | Test Position    | Antenna-to-edge/surface | SAR Required | Note |
|-----------------------|------------------------|------------------------|------------------|-------------------------|--------------|------|
| WWAN (Antenna 1)      | Head                   | 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                   | 10 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                 | No           | 1    |
|                       |                        |                        | Edge 2 (Right)   | < 25 mm                 | Yes          |      |
|                       |                        |                        | Edge 3 (Bottom)  | < 25 mm                 | Yes          |      |
|                       |                        |                        | Edge 4 (Left)    | > 25 mm                 | No           | 1    |
| WWAN (Antenna 2)      | Head                   | 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                   | 10 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                 | No           | 1    |
|                       |                        |                        | Edge 2 (Right)   | < 25 mm                 | Yes          |      |
|                       |                        |                        | Edge 3 (Bottom)  | < 25 mm                 | Yes          |      |
|                       |                        |                        | Edge 4 (Left)    | < 25 mm                 | Yes          |      |
| WLAN (Antenna 3)      | Head                   | 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                   | 10 mm                  | Rear             | N/A                     | Yes          |      |
|                       |                        |                        | Front            | N/A                     | Yes          |      |
|                       | Hotspot / Wi-Fi Direct | 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          |      |
| WLAN (Antenna 4)      | Head                   | 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                   | 10 mm                  | Rear             | N/A                     | Yes          |      |
|                       |                        |                        | Front            | N/A                     | Yes          |      |
|                       | Hotspot / Wi-Fi Direct | 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          |      |

### Notes:

1. SAR is not required because the distance from the antenna to the edge is > 25 mm as per KDB 941225 D06 Hot Spot SAR.

## 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           |

#### IEEE Std 1528-2013

Refer to Table 3 within the IEEE Std 1528-2013

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

| Date      | Freq. (MHz) |    | Liquid Parameters |                                          | Measured | Target | Delta (%) | Limit ±(%) |
|-----------|-------------|----|-------------------|------------------------------------------|----------|--------|-----------|------------|
| 7/8/2015  | Body 2450   | e' | 52.2300           | Relative Permittivity (ε <sub>r</sub> ): | 52.23    | 52.70  | -0.89     | 5          |
|           |             | e" | 14.8300           | Conductivity (σ):                        | 2.02     | 1.95   | 3.60      | 5          |
|           | Body 2410   | e' | 52.3900           | Relative Permittivity (ε <sub>r</sub> ): | 52.39    | 52.76  | -0.70     | 5          |
|           |             | e" | 14.7500           | Conductivity (σ):                        | 1.98     | 1.91   | 3.62      | 5          |
|           | Body 2475   | e' | 52.1600           | Relative Permittivity (ε <sub>r</sub> ): | 52.16    | 52.67  | -0.97     | 5          |
|           |             | e" | 15.0300           | Conductivity (σ):                        | 2.07     | 1.99   | 4.19      | 5          |
| 7/8/2015  | Body 2600   | e' | 51.8500           | Relative Permittivity (ε <sub>r</sub> ): | 51.85    | 52.51  | -1.26     | 5          |
|           |             | e" | 15.2900           | Conductivity (σ):                        | 2.21     | 2.16   | 2.30      | 5          |
|           | Body 2500   | e' | 52.0700           | Relative Permittivity (ε <sub>r</sub> ): | 52.07    | 52.64  | -1.08     | 5          |
|           |             | e" | 14.9800           | Conductivity (σ):                        | 2.08     | 2.02   | 3.07      | 5          |
|           | Body 2700   | e' | 51.5500           | Relative Permittivity (ε <sub>r</sub> ): | 51.55    | 52.38  | -1.59     | 5          |
|           |             | e" | 15.5500           | Conductivity (σ):                        | 2.33     | 2.30   | 1.44      | 5          |
| 7/8/2015  | Head 2600   | e' | 38.6400           | Relative Permittivity (ε <sub>r</sub> ): | 38.64    | 39.01  | -0.95     | 5          |
|           |             | e" | 14.0100           | Conductivity (σ):                        | 2.03     | 1.96   | 3.22      | 5          |
|           | Head 2500   | e' | 38.9800           | Relative Permittivity (ε <sub>r</sub> ): | 38.98    | 39.14  | -0.40     | 5          |
|           |             | e" | 13.7700           | Conductivity (σ):                        | 1.91     | 1.85   | 3.24      | 5          |
|           | Head 2700   | e' | 38.2900           | Relative Permittivity (ε <sub>r</sub> ): | 38.29    | 38.88  | -1.53     | 5          |
|           |             | e" | 14.2800           | Conductivity (σ):                        | 2.14     | 2.07   | 3.55      | 5          |
| 7/8/2015  | Head 2450   | e' | 39.1400           | Relative Permittivity (ε <sub>r</sub> ): | 39.14    | 39.20  | -0.15     | 5          |
|           |             | e" | 13.6200           | Conductivity (σ):                        | 1.86     | 1.80   | 3.08      | 5          |
|           | Head 2410   | e' | 39.3300           | Relative Permittivity (ε <sub>r</sub> ): | 39.33    | 39.28  | 0.13      | 5          |
|           |             | e" | 13.5200           | Conductivity (σ):                        | 1.81     | 1.76   | 2.91      | 5          |
|           | Head 2475   | e' | 39.0400           | Relative Permittivity (ε <sub>r</sub> ): | 39.04    | 39.17  | -0.33     | 5          |
|           |             | e" | 13.7800           | Conductivity (σ):                        | 1.90     | 1.83   | 3.80      | 5          |
| 7/12/2015 | Head 2450   | e' | 40.5500           | Relative Permittivity (ε <sub>r</sub> ): | 40.55    | 39.20  | 3.44      | 5          |
|           |             | e" | 13.8500           | Conductivity (σ):                        | 1.89     | 1.80   | 4.82      | 5          |
|           | Head 2410   | e' | 40.7800           | Relative Permittivity (ε <sub>r</sub> ): | 40.78    | 39.28  | 3.82      | 5          |
|           |             | e" | 13.7100           | Conductivity (σ):                        | 1.84     | 1.76   | 4.36      | 5          |
|           | Head 2475   | e' | 40.5000           | Relative Permittivity (ε <sub>r</sub> ): | 40.50    | 39.17  | 3.40      | 5          |
|           |             | e" | 13.8200           | Conductivity (σ):                        | 1.90     | 1.83   | 4.10      | 5          |
| 7/12/2015 | Body 2450   | e' | 51.5200           | Relative Permittivity (ε <sub>r</sub> ): | 51.52    | 52.70  | -2.24     | 5          |
|           |             | e" | 14.7000           | Conductivity (σ):                        | 2.00     | 1.95   | 2.69      | 5          |
|           | Body 2410   | e' | 51.6600           | Relative Permittivity (ε <sub>r</sub> ): | 51.66    | 52.76  | -2.08     | 5          |
|           |             | e" | 14.5800           | Conductivity (σ):                        | 1.95     | 1.91   | 2.43      | 5          |
|           | Body 2475   | e' | 51.5000           | Relative Permittivity (ε <sub>r</sub> ): | 51.50    | 52.67  | -2.22     | 5          |
|           |             | e" | 14.8300           | Conductivity (σ):                        | 2.04     | 1.99   | 2.81      | 5          |
| 7/15/2015 | Head 2600   | e' | 37.3400           | Relative Permittivity (ε <sub>r</sub> ): | 37.34    | 39.01  | -4.28     | 5          |
|           |             | e" | 14.0000           | Conductivity (σ):                        | 2.02     | 1.96   | 3.15      | 5          |
|           | Head 2500   | e' | 37.8000           | Relative Permittivity (ε <sub>r</sub> ): | 37.80    | 39.14  | -3.42     | 5          |
|           |             | e" | 13.8100           | Conductivity (σ):                        | 1.92     | 1.85   | 3.54      | 5          |
|           | Head 2700   | e' | 37.0100           | Relative Permittivity (ε <sub>r</sub> ): | 37.01    | 38.88  | -4.82     | 5          |
|           |             | e" | 14.2100           | Conductivity (σ):                        | 2.13     | 2.07   | 3.05      | 5          |
| 7/15/2015 | Body 2600   | e' | 50.6700           | Relative Permittivity (ε <sub>r</sub> ): | 50.67    | 52.51  | -3.51     | 5          |
|           |             | e" | 15.3000           | Conductivity (σ):                        | 2.21     | 2.16   | 2.36      | 5          |
|           | Body 2500   | e' | 50.9500           | Relative Permittivity (ε <sub>r</sub> ): | 50.95    | 52.64  | -3.20     | 5          |
|           |             | e" | 14.9100           | Conductivity (σ):                        | 2.07     | 2.02   | 2.59      | 5          |
|           | Body 2700   | e' | 50.3500           | Relative Permittivity (ε <sub>r</sub> ): | 50.35    | 52.38  | -3.88     | 5          |
|           |             | e" | 15.4500           | Conductivity (σ):                        | 2.32     | 2.30   | 0.79      | 5          |

**SAR Lab 1 (continued)**

| Date      | Freq. (MHz) | Liquid Parameters |         |                                         | Measured | Target | Delta (%) | Limit ±(%) |
|-----------|-------------|-------------------|---------|-----------------------------------------|----------|--------|-----------|------------|
| 7/17/2015 | Body 2450   | e'                | 51.0000 | Relative Permittivity ( $\epsilon_r$ ): | 51.00    | 52.70  | -3.23     | 5          |
|           |             | e"                | 14.6700 | Conductivity ( $\sigma$ ):              | 2.00     | 1.95   | 2.49      | 5          |
|           | Body 2410   | e'                | 51.0700 | Relative Permittivity ( $\epsilon_r$ ): | 51.07    | 52.76  | -3.20     | 5          |
|           |             | e"                | 14.4900 | Conductivity ( $\sigma$ ):              | 1.94     | 1.91   | 1.79      | 5          |
|           | Body 2475   | e'                | 50.8900 | Relative Permittivity ( $\epsilon_r$ ): | 50.89    | 52.67  | -3.38     | 5          |
|           |             | e"                | 14.7200 | Conductivity ( $\sigma$ ):              | 2.03     | 1.99   | 2.05      | 5          |

**SAR Lab 2**

| Date      | Freq. (MHz) | Liquid Parameters |         |                                         | Measured | Target | Delta (%) | Limit ±(%) |
|-----------|-------------|-------------------|---------|-----------------------------------------|----------|--------|-----------|------------|
| 7/11/2015 | Head 1750   | e'                | 38.9400 | Relative Permittivity ( $\epsilon_r$ ): | 38.94    | 40.08  | -2.86     | 5          |
|           |             | e''               | 13.9000 | Conductivity ( $\sigma$ ):              | 1.35     | 1.37   | -1.20     | 5          |
|           | Head 1710   | e'                | 39.1700 | Relative Permittivity ( $\epsilon_r$ ): | 39.17    | 40.15  | -2.43     | 5          |
|           |             | e''               | 13.7700 | Conductivity ( $\sigma$ ):              | 1.31     | 1.35   | -2.76     | 5          |
|           | Head 1755   | e'                | 38.9300 | Relative Permittivity ( $\epsilon_r$ ): | 38.93    | 40.08  | -2.86     | 5          |
|           |             | e''               | 13.9600 | Conductivity ( $\sigma$ ):              | 1.36     | 1.37   | -0.69     | 5          |
| 7/11/2015 | Body 1750   | e'                | 51.4500 | Relative Permittivity ( $\epsilon_r$ ): | 51.45    | 53.44  | -3.73     | 5          |
|           |             | e''               | 15.2100 | Conductivity ( $\sigma$ ):              | 1.48     | 1.49   | -0.41     | 5          |
|           | Body 1710   | e'                | 51.6800 | Relative Permittivity ( $\epsilon_r$ ): | 51.68    | 53.54  | -3.48     | 5          |
|           |             | e''               | 15.0500 | Conductivity ( $\sigma$ ):              | 1.43     | 1.46   | -2.09     | 5          |
|           | Body 1755   | e'                | 51.4900 | Relative Permittivity ( $\epsilon_r$ ): | 51.49    | 53.43  | -3.63     | 5          |
|           |             | e''               | 15.2100 | Conductivity ( $\sigma$ ):              | 1.48     | 1.49   | -0.33     | 5          |
| 7/15/2015 | Head 1750   | e'                | 39.0400 | Relative Permittivity ( $\epsilon_r$ ): | 39.04    | 40.08  | -2.61     | 5          |
|           |             | e''               | 14.0800 | Conductivity ( $\sigma$ ):              | 1.37     | 1.37   | 0.08      | 5          |
|           | Head 1710   | e'                | 39.2100 | Relative Permittivity ( $\epsilon_r$ ): | 39.21    | 40.15  | -2.33     | 5          |
|           |             | e''               | 14.0100 | Conductivity ( $\sigma$ ):              | 1.33     | 1.35   | -1.06     | 5          |
|           | Head 1755   | e'                | 38.9700 | Relative Permittivity ( $\epsilon_r$ ): | 38.97    | 40.08  | -2.76     | 5          |
|           |             | e''               | 14.1800 | Conductivity ( $\sigma$ ):              | 1.38     | 1.37   | 0.87      | 5          |
| 7/15/2015 | Body 1750   | e'                | 51.4100 | Relative Permittivity ( $\epsilon_r$ ): | 51.41    | 53.44  | -3.80     | 5          |
|           |             | e''               | 15.5400 | Conductivity ( $\sigma$ ):              | 1.51     | 1.49   | 1.75      | 5          |
|           | Body 1710   | e'                | 51.5000 | Relative Permittivity ( $\epsilon_r$ ): | 51.50    | 53.54  | -3.82     | 5          |
|           |             | e''               | 15.4800 | Conductivity ( $\sigma$ ):              | 1.47     | 1.46   | 0.71      | 5          |
|           | Body 1755   | e'                | 51.4100 | Relative Permittivity ( $\epsilon_r$ ): | 51.41    | 53.43  | -3.78     | 5          |
|           |             | e''               | 15.5400 | Conductivity ( $\sigma$ ):              | 1.52     | 1.49   | 1.83      | 5          |

**SAR Lab 3**

| Date      | Freq. (MHz) | Liquid Parameters |         |                                         | Measured | Target | Delta (%) | Limit ±(%) |
|-----------|-------------|-------------------|---------|-----------------------------------------|----------|--------|-----------|------------|
| 7/10/2015 | Body 1900   | e'                | 51.1100 | Relative Permittivity ( $\epsilon_r$ ): | 51.11    | 53.30  | -4.11     | 5          |
|           |             | e"                | 14.5000 | Conductivity ( $\sigma$ ):              | 1.53     | 1.52   | 0.78      | 5          |
|           | Body 1850   | e'                | 51.2100 | Relative Permittivity ( $\epsilon_r$ ): | 51.21    | 53.30  | -3.92     | 5          |
|           |             | e"                | 14.3300 | Conductivity ( $\sigma$ ):              | 1.47     | 1.52   | -3.02     | 5          |
|           | Body 1910   | e'                | 51.1200 | Relative Permittivity ( $\epsilon_r$ ): | 51.12    | 53.30  | -4.09     | 5          |
|           |             | e"                | 14.4000 | Conductivity ( $\sigma$ ):              | 1.53     | 1.52   | 0.61      | 5          |
| 7/10/2015 | Head 1900   | e'                | 38.1200 | Relative Permittivity ( $\epsilon_r$ ): | 38.12    | 40.00  | -4.70     | 5          |
|           |             | e"                | 13.5500 | Conductivity ( $\sigma$ ):              | 1.43     | 1.40   | 2.25      | 5          |
|           | Head 1850   | e'                | 38.1000 | Relative Permittivity ( $\epsilon_r$ ): | 38.10    | 40.00  | -4.75     | 5          |
|           |             | e"                | 13.4200 | Conductivity ( $\sigma$ ):              | 1.38     | 1.40   | -1.40     | 5          |
|           | Head 1910   | e'                | 38.1100 | Relative Permittivity ( $\epsilon_r$ ): | 38.11    | 40.00  | -4.73     | 5          |
|           |             | e"                | 13.4300 | Conductivity ( $\sigma$ ):              | 1.43     | 1.40   | 1.88      | 5          |
| 7/14/2015 | Body 1900   | e'                | 50.7000 | Relative Permittivity ( $\epsilon_r$ ): | 50.70    | 53.30  | -4.88     | 5          |
|           |             | e"                | 14.3900 | Conductivity ( $\sigma$ ):              | 1.52     | 1.52   | 0.02      | 5          |
|           | Body 1850   | e'                | 50.8700 | Relative Permittivity ( $\epsilon_r$ ): | 50.87    | 53.30  | -4.56     | 5          |
|           |             | e"                | 14.3100 | Conductivity ( $\sigma$ ):              | 1.47     | 1.52   | -3.16     | 5          |
|           | Body 1910   | e'                | 50.6800 | Relative Permittivity ( $\epsilon_r$ ): | 50.68    | 53.30  | -4.92     | 5          |
|           |             | e"                | 14.3400 | Conductivity ( $\sigma$ ):              | 1.52     | 1.52   | 0.19      | 5          |
| 7/14/2015 | Head 1900   | e'                | 39.3300 | Relative Permittivity ( $\epsilon_r$ ): | 39.33    | 40.00  | -1.68     | 5          |
|           |             | e"                | 13.4900 | Conductivity ( $\sigma$ ):              | 1.43     | 1.40   | 1.80      | 5          |
|           | Head 1850   | e'                | 39.4900 | Relative Permittivity ( $\epsilon_r$ ): | 39.49    | 40.00  | -1.28     | 5          |
|           |             | e"                | 13.3700 | Conductivity ( $\sigma$ ):              | 1.38     | 1.40   | -1.76     | 5          |
|           | Head 1910   | e'                | 39.2100 | Relative Permittivity ( $\epsilon_r$ ): | 39.21    | 40.00  | -1.98     | 5          |
|           |             | e"                | 13.4900 | Conductivity ( $\sigma$ ):              | 1.43     | 1.40   | 2.33      | 5          |

**SAR Lab 4**

| Date      | Freq. (MHz) | Liquid Parameters |         |                                         | Measured | Target | Delta (%) | Limit ±(%) |
|-----------|-------------|-------------------|---------|-----------------------------------------|----------|--------|-----------|------------|
| 7/13/2015 | Head 5180   | e'                | 35.9400 | Relative Permittivity ( $\epsilon_r$ ): | 35.94    | 36.01  | -0.20     | 5          |
|           |             | e"                | 15.6100 | Conductivity ( $\sigma$ ):              | 4.50     | 4.63   | -2.90     | 5          |
|           | Head 5200   | e'                | 35.7700 | Relative Permittivity ( $\epsilon_r$ ): | 35.77    | 35.99  | -0.61     | 5          |
|           |             | e"                | 15.6700 | Conductivity ( $\sigma$ ):              | 4.53     | 4.65   | -2.58     | 5          |
|           | Head 5600   | e'                | 35.2600 | Relative Permittivity ( $\epsilon_r$ ): | 35.26    | 35.53  | -0.77     | 5          |
|           |             | e"                | 15.8500 | Conductivity ( $\sigma$ ):              | 4.94     | 5.06   | -2.47     | 5          |
|           | Head 5800   | e'                | 35.2000 | Relative Permittivity ( $\epsilon_r$ ): | 35.20    | 35.30  | -0.28     | 5          |
|           |             | e"                | 15.8300 | Conductivity ( $\sigma$ ):              | 5.11     | 5.27   | -3.13     | 5          |
|           | Head 5825   | e'                | 35.0700 | Relative Permittivity ( $\epsilon_r$ ): | 35.07    | 35.30  | -0.65     | 5          |
|           |             | e"                | 15.9800 | Conductivity ( $\sigma$ ):              | 5.18     | 5.27   | -1.79     | 5          |
| 7/13/2015 | Body 5180   | e'                | 48.7400 | Relative Permittivity ( $\epsilon_r$ ): | 48.74    | 49.05  | -0.63     | 5          |
|           |             | e"                | 18.6400 | Conductivity ( $\sigma$ ):              | 5.37     | 5.27   | 1.85      | 5          |
|           | Body 5200   | e'                | 48.6600 | Relative Permittivity ( $\epsilon_r$ ): | 48.66    | 49.02  | -0.73     | 5          |
|           |             | e"                | 18.9900 | Conductivity ( $\sigma$ ):              | 5.49     | 5.29   | 3.70      | 5          |
|           | Body 5600   | e'                | 48.0900 | Relative Permittivity ( $\epsilon_r$ ): | 48.09    | 48.48  | -0.80     | 5          |
|           |             | e"                | 19.0300 | Conductivity ( $\sigma$ ):              | 5.93     | 5.76   | 2.86      | 5          |
|           | Body 5800   | e'                | 47.9600 | Relative Permittivity ( $\epsilon_r$ ): | 47.96    | 48.20  | -0.50     | 5          |
|           |             | e"                | 19.1200 | Conductivity ( $\sigma$ ):              | 6.17     | 6.00   | 2.77      | 5          |
|           | Body 5825   | e'                | 47.7700 | Relative Permittivity ( $\epsilon_r$ ): | 47.77    | 48.20  | -0.89     | 5          |
|           |             | e"                | 19.2600 | Conductivity ( $\sigma$ ):              | 6.24     | 6.00   | 3.97      | 5          |
| 7/17/2015 | Body 5180   | e'                | 47.7000 | Relative Permittivity ( $\epsilon_r$ ): | 47.70    | 49.05  | -2.75     | 5          |
|           |             | e"                | 18.3600 | Conductivity ( $\sigma$ ):              | 5.29     | 5.27   | 0.32      | 5          |
|           | Body 5200   | e'                | 47.7000 | Relative Permittivity ( $\epsilon_r$ ): | 47.70    | 49.02  | -2.69     | 5          |
|           |             | e"                | 18.0500 | Conductivity ( $\sigma$ ):              | 5.22     | 5.29   | -1.43     | 5          |
|           | Body 5600   | e'                | 47.0300 | Relative Permittivity ( $\epsilon_r$ ): | 47.03    | 48.48  | -2.99     | 5          |
|           |             | e"                | 18.5400 | Conductivity ( $\sigma$ ):              | 5.77     | 5.76   | 0.21      | 5          |
|           | Body 5800   | e'                | 46.5000 | Relative Permittivity ( $\epsilon_r$ ): | 46.50    | 48.20  | -3.53     | 5          |
|           |             | e"                | 18.5400 | Conductivity ( $\sigma$ ):              | 5.98     | 6.00   | -0.35     | 5          |
|           | Body 5825   | e'                | 46.8300 | Relative Permittivity ( $\epsilon_r$ ): | 46.83    | 48.20  | -2.84     | 5          |
|           |             | e"                | 18.7700 | Conductivity ( $\sigma$ ):              | 6.08     | 6.00   | 1.32      | 5          |
| 7/20/2015 | Head 2450   | e'                | 38.2900 | Relative Permittivity ( $\epsilon_r$ ): | 38.29    | 39.20  | -2.32     | 5          |
|           |             | e"                | 13.6200 | Conductivity ( $\sigma$ ):              | 1.86     | 1.80   | 3.08      | 5          |
|           | Head 2410   | e'                | 38.4900 | Relative Permittivity ( $\epsilon_r$ ): | 38.49    | 39.28  | -2.01     | 5          |
|           |             | e"                | 13.5000 | Conductivity ( $\sigma$ ):              | 1.81     | 1.76   | 2.76      | 5          |
|           | Head 2475   | e'                | 38.2500 | Relative Permittivity ( $\epsilon_r$ ): | 38.25    | 39.17  | -2.34     | 5          |
|           |             | e"                | 13.7200 | Conductivity ( $\sigma$ ):              | 1.89     | 1.83   | 3.34      | 5          |

**SAR Lab 5**

| Date      | Freq. (MHz) | Liquid Parameters |         |                                         | Measured | Target | Delta (%) | Limit ±(%) |
|-----------|-------------|-------------------|---------|-----------------------------------------|----------|--------|-----------|------------|
| 7/8/2015  | Head 835    | e'                | 41.4100 | Relative Permittivity ( $\epsilon_r$ ): | 41.41    | 41.50  | -0.22     | 5          |
|           |             | e''               | 19.0100 | Conductivity ( $\sigma$ ):              | 0.88     | 0.90   | -1.93     | 5          |
|           | Head 820    | e'                | 41.4100 | Relative Permittivity ( $\epsilon_r$ ): | 41.41    | 41.60  | -0.46     | 5          |
|           |             | e''               | 19.1300 | Conductivity ( $\sigma$ ):              | 0.87     | 0.90   | -2.92     | 5          |
|           | Head 850    | e'                | 41.1100 | Relative Permittivity ( $\epsilon_r$ ): | 41.11    | 41.50  | -0.94     | 5          |
|           |             | e''               | 19.0400 | Conductivity ( $\sigma$ ):              | 0.90     | 0.92   | -1.65     | 5          |
| 7/8/2015  | Body 835    | e'                | 53.9100 | Relative Permittivity ( $\epsilon_r$ ): | 53.91    | 55.20  | -2.34     | 5          |
|           |             | e''               | 21.9000 | Conductivity ( $\sigma$ ):              | 1.02     | 0.97   | 4.82      | 5          |
|           | Body 820    | e'                | 54.1300 | Relative Permittivity ( $\epsilon_r$ ): | 54.13    | 55.28  | -2.07     | 5          |
|           |             | e''               | 21.9700 | Conductivity ( $\sigma$ ):              | 1.00     | 0.97   | 3.43      | 5          |
|           | Body 850    | e'                | 53.7100 | Relative Permittivity ( $\epsilon_r$ ): | 53.71    | 55.16  | -2.62     | 5          |
|           |             | e''               | 21.6700 | Conductivity ( $\sigma$ ):              | 1.02     | 0.99   | 3.75      | 5          |
| 7/13/2015 | Head 750    | e'                | 40.7700 | Relative Permittivity ( $\epsilon_r$ ): | 40.77    | 41.96  | -2.84     | 5          |
|           |             | e''               | 21.4200 | Conductivity ( $\sigma$ ):              | 0.89     | 0.89   | 0.02      | 5          |
|           | Head 700    | e'                | 41.4000 | Relative Permittivity ( $\epsilon_r$ ): | 41.40    | 42.22  | -1.94     | 5          |
|           |             | e''               | 21.8200 | Conductivity ( $\sigma$ ):              | 0.85     | 0.89   | -4.49     | 5          |
|           | Head 790    | e'                | 40.3000 | Relative Permittivity ( $\epsilon_r$ ): | 40.30    | 41.76  | -3.49     | 5          |
|           |             | e''               | 21.1300 | Conductivity ( $\sigma$ ):              | 0.93     | 0.90   | 3.57      | 5          |
| 7/13/2015 | Body 750    | e'                | 53.9700 | Relative Permittivity ( $\epsilon_r$ ): | 53.97    | 55.55  | -2.84     | 5          |
|           |             | e''               | 23.2400 | Conductivity ( $\sigma$ ):              | 0.97     | 0.96   | 0.63      | 5          |
|           | Body 700    | e'                | 54.3300 | Relative Permittivity ( $\epsilon_r$ ): | 54.33    | 55.74  | -2.53     | 5          |
|           |             | e''               | 23.6400 | Conductivity ( $\sigma$ ):              | 0.92     | 0.96   | -4.08     | 5          |
|           | Body 790    | e'                | 53.5300 | Relative Permittivity ( $\epsilon_r$ ): | 53.53    | 55.39  | -3.36     | 5          |
|           |             | e''               | 22.8200 | Conductivity ( $\sigma$ ):              | 1.00     | 0.97   | 3.75      | 5          |
| 7/14/2015 | Head 835    | e'                | 41.6200 | Relative Permittivity ( $\epsilon_r$ ): | 41.62    | 41.50  | 0.29      | 5          |
|           |             | e''               | 19.1100 | Conductivity ( $\sigma$ ):              | 0.89     | 0.90   | -1.42     | 5          |
|           | Head 820    | e'                | 41.8100 | Relative Permittivity ( $\epsilon_r$ ): | 41.81    | 41.60  | 0.50      | 5          |
|           |             | e''               | 19.2800 | Conductivity ( $\sigma$ ):              | 0.88     | 0.90   | -2.16     | 5          |
|           | Head 850    | e'                | 41.4800 | Relative Permittivity ( $\epsilon_r$ ): | 41.48    | 41.50  | -0.05     | 5          |
|           |             | e''               | 19.0800 | Conductivity ( $\sigma$ ):              | 0.90     | 0.92   | -1.45     | 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 3 mm.  
For 5 GHz band - Distance between probe sensors and phantom surface was set to 2.5 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 | Body  |
| D750V3        | 1071       | 11/13/2014 | 750         | 1g                       | 8.22 | 8.52  |
|               |            |            |             | 10g                      | 5.39 | 5.64  |
| D835V2        | 4d142      | 9/9/2014   | 835         | 1g                       | 8.91 | 9.22  |
|               |            |            |             | 10g                      | 5.77 | 6.05  |
| D835V2        | 4d117      | 5/18/2015  | 835         | 1g                       | 9.08 | 9.38  |
|               |            |            |             | 10g                      | 5.93 | 6.20  |
| D1750V2       | 1077       | 9/11/2014  | 1750        | 1g                       | 36.5 | 36.90 |
|               |            |            |             | 10g                      | 19.4 | 19.8  |
| D1900V2       | 5d163      | 9/11/2014  | 1900        | 1g                       | 40.8 | 40.6  |
|               |            |            |             | 10g                      | 21.2 | 21.4  |
| D2450V2       | 706        | 5/11/2015  | 2450        | 1g                       | 52.6 | 51.3  |
|               |            |            |             | 10g                      | 24.6 | 24.0  |
| D2600V2       | 1036       | 3/13/2015  | 2600        | 1g                       | 56.1 | 56.2  |
|               |            |            |             | 10g                      | 25.0 | 25.0  |
| D5GHzV2       | 1168       | 12/4/2014  | 5200        | 1g                       | 79.3 | 76.0  |
|               |            |            |             | 10g                      | 22.5 | 21.1  |
|               |            |            | 5600        | 1g                       | 81.7 | 82.0  |
|               |            |            |             | 10g                      | 23.2 | 22.7  |
|               |            |            | 5800        | 1g                       | 78.0 | 76.2  |
|               |            |            |             | 10g                      | 22.1 | 21.0  |

**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 Lab 1**

| 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 |                     |                  |          |
| 7/8/2015    | D2450V2       | 706      | Body        | 1g  | 5.03                | 50.3             | 51.3                | -1.95            |          |
|             |               |          |             | 10g | 2.33                | 23.3             | 24.0                | -2.92            |          |
| 7/8/2015    | D2600V2       | 1036     | Body        | 1g  | 5.62                | 56.2             | 56.2                | 0.00             |          |
|             |               |          |             | 10g | 2.46                | 24.6             | 25.0                | -1.60            |          |
| 7/8/2015    | D2600V2       | 1036     | Head        | 1g  | 6.08                | 60.8             | 56.1                | <b>8.38</b>      | 1,2      |
|             |               |          |             | 10g | 2.66                | 26.6             | 25.0                | 6.40             |          |
| 7/8/2015    | D2450V2       | 706      | Head        | 1g  | 5.46                | 54.6             | 52.6                | 3.80             |          |
|             |               |          |             | 10g | 2.49                | 24.9             | 24.6                | 1.22             |          |
| 7/12/2015   | D2450V2       | 706      | Head        | 1g  | 5.36                | 53.6             | 52.6                | 1.90             |          |
|             |               |          |             | 10g | 2.43                | 24.3             | 24.6                | -1.22            |          |
| 7/12/2015   | D2450V2       | 706      | Body        | 1g  | 5.01                | 50.1             | 51.3                | -2.34            |          |
|             |               |          |             | 10g | 2.31                | 23.1             | 24.0                | -3.75            |          |
| 7/15/2015   | D2600V2       | 1036     | Head        | 1g  | 5.57                | 55.7             | 56.1                | -0.71            |          |
|             |               |          |             | 10g | 2.44                | 24.4             | 25.0                | -2.40            |          |
| 7/15/2015   | D2600V2       | 1036     | Body        | 1g  | 5.68                | 56.8             | 56.2                | 1.07             |          |
|             |               |          |             | 10g | 2.48                | 24.8             | 25.0                | -0.80            |          |
| 7/17/2015   | D2450V2       | 706      | Body        | 1g  | 5.37                | 53.7             | 51.3                | <b>4.68</b>      | 3,4      |
|             |               |          |             | 10g | 2.47                | 24.7             | 24.0                | 2.92             |          |

**SAR Lab 2**

| 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 |                     |                  |          |
| 7/11/2015   | D1750V2       | 1077     | Head        | 1g  | 3.67                | 36.7             | 36.50               | 0.55             |          |
|             |               |          |             | 10g | 1.94                | 19.4             | 19.40               | 0.00             |          |
| 7/11/2015   | D1750V2       | 1077     | Body        | 1g  | 3.93                | 39.3             | 36.90               | <b>6.50</b>      | 5,6      |
|             |               |          |             | 10g | 2.11                | 21.1             | 19.8                | 6.57             |          |
| 7/15/2015   | D1750V2       | 1077     | Head        | 1g  | 3.63                | 36.3             | 36.50               | -0.55            |          |
|             |               |          |             | 10g | 1.91                | 19.1             | 19.40               | -1.55            |          |
| 7/15/2015   | D1750V2       | 1077     | Body        | 1g  | 3.83                | 38.3             | 36.90               | 3.79             |          |
|             |               |          |             | 10g | 2.04                | 20.4             | 19.8                | 3.03             |          |

**SAR Lab 3**

| 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 |                     |                  |          |
| 7/10/2015   | D1900V2       | 5d163    | Body        | 1g  | 4.04                | 40.4             | 40.6                | -0.49            |          |
|             |               |          |             | 10g | 2.11                | 21.1             | 21.4                | -1.40            |          |
| 7/10/2015   | D1900V2       | 5d163    | Head        | 1g  | 4.10                | 41.0             | 40.8                | 0.49             |          |
|             |               |          |             | 10g | 2.12                | 21.2             | 21.2                | 0.00             |          |
| 7/14/2015   | D1900V2       | 5d163    | Body        | 1g  | 4.08                | 40.8             | 40.6                | 0.49             |          |
|             |               |          |             | 10g | 2.12                | 21.2             | 21.4                | -0.93            |          |
| 7/14/2015   | D1900V2       | 5d163    | Head        | 1g  | 4.12                | 41.2             | 40.8                | <b>0.98</b>      | 7,8      |
|             |               |          |             | 10g | 2.13                | 21.3             | 21.2                | 0.47             |          |

**SAR Lab 4**

| 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 |                     |                  |          |
| 7/13/2015   | D5GHzV2 (5.2)    | 1168     | Head        | 1g  | 7.81                | 78.1             | 79.30               | -1.51            |          |
|             |                  |          |             | 10g | 2.24                | 22.4             | 22.50               | -0.44            |          |
| 7/13/2015   | D5GHzV2 (5.2)    | 1168     | Body        | 1g  | 7.36                | 73.6             | 76.00               | -3.16            |          |
|             |                  |          |             | 10g | 2.08                | 20.8             | 21.10               | -1.42            |          |
| 7/13/2015   | D5GHzV2 (5.6)    | 1168     | Head        | 1g  | 8.66                | 86.6             | 81.70               | <b>6.00</b>      | 9,10     |
|             |                  |          |             | 10g | 2.48                | 24.8             | 23.20               | 6.90             |          |
| 7/13/2015   | D5GHzV2 (5.6)    | 1168     | Body        | 1g  | 8.54                | 85.4             | 82.00               | 4.15             |          |
|             |                  |          |             | 10g | 2.38                | 23.8             | 22.70               | 4.85             |          |
| 7/13/2015   | D5GHzV2 (5.8)    | 1168     | Head        | 1g  | 8.18                | 81.8             | 78.00               | 4.87             |          |
|             |                  |          |             | 10g | 2.33                | 23.3             | 22.10               | 5.43             |          |
| 7/13/2015   | D5GHzV2 (5.8)    | 1168     | Body        | 1g  | 7.69                | 76.9             | 76.20               | 0.92             |          |
|             |                  |          |             | 10g | 2.14                | 21.4             | 21.00               | 1.90             |          |
| 7/17/2015   | D5GHzV2 (5.2GHz) | 1168     | Body        | 1g  | 7.54                | 75.4             | 76.00               | -0.79            |          |
|             |                  |          |             | 10g | 2.12                | 21.2             | 21.10               | 0.47             |          |
| 7/17/2015   | D5GHzV2 (5.6GHz) | 1168     | Body        | 1g  | 8.04                | 80.4             | 82.00               | -1.95            |          |
|             |                  |          |             | 10g | 2.24                | 22.4             | 22.70               | -1.32            |          |
| 7/17/2015   | D5GHzV2 (5.8GHz) | 1168     | Body        | 1g  | 7.49                | 74.9             | 76.20               | -1.71            |          |
|             |                  |          |             | 10g | 2.08                | 20.8             | 21.00               | -0.95            |          |
| 7/20/2015   | D2450V2          | 706      | Head        | 1g  | 5.60                | 56.0             | 51.30               | <b>9.16</b>      | 11,12    |
|             |                  |          |             | 10g | 2.53                | 25.3             | 24.00               | 5.42             |          |

**SAR Lab 5**

| 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 |                     |                  |          |
| 7/8/2015    | D835V2        | 4d142    | Head        | 1g  | 0.90                | 9.0              | 8.91                | 1.12             |          |
|             |               |          |             | 10g | 0.59                | 5.9              | 5.77                | 2.60             |          |
| 7/8/2015    | D835V2        | 4d142    | Body        | 1g  | 0.98                | 9.8              | 9.22                | <b>6.51</b>      | 13,14    |
|             |               |          |             | 10g | 0.65                | 6.5              | 6.05                | 6.61             |          |
| 7/13/2015   | D750V3        | 1071     | Head        | 1g  | 0.79                | 7.9              | 8.22                | <b>-4.26</b>     | 15,16    |
|             |               |          |             | 10g | 0.52                | 5.2              | 5.39                | -4.27            |          |
| 7/13/2015   | D750V3        | 1071     | Body        | 1g  | 0.86                | 8.6              | 8.52                | 1.06             |          |
|             |               |          |             | 10g | 0.58                | 5.8              | 5.64                | 1.95             |          |
| 7/14/2015   | D835V2        | 4d117    | Head        | 1g  | 0.96                | 9.6              | 9.08                | <b>5.73</b>      | 17,18    |
|             |               |          |             | 10g | 0.63                | 6.3              | 5.93                | 6.75             |          |

## 9. Conducted Output Power Measurements

### 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

| Band | Mode         | Coding Scheme | Time Slots | Ch No. | Freq. (MHz) | Max. Pwr    |             | Frame Pwr Maximum |
|------|--------------|---------------|------------|--------|-------------|-------------|-------------|-------------------|
|      |              |               |            |        |             | Burst (dBm) | Frame (dBm) |                   |
| 850  | GSM (Voice)  | CS1           | 1          | 128    | 824.2       | 33.2        | 24.2        | 24.17             |
|      |              |               |            | 190    | 836.6       | 33.1        | 24.1        |                   |
|      |              |               |            | 251    | 848.8       | 33.1        | 24.1        |                   |
|      | GPRS (GMSK)  | CS1           | 1          | 128    | 824.2       | 33.2        | 24.2        | 24.17             |
|      |              |               |            | 190    | 836.6       | 33.1        | 24.1        |                   |
|      |              |               |            | 251    | 848.8       | 33.2        | 24.2        |                   |
|      |              |               | 2          | 128    | 824.2       | 31.1        | 25.1        | 25.18             |
|      |              |               |            | 190    | 836.6       | 31.0        | 25.0        |                   |
|      |              |               |            | 251    | 848.8       | 31.1        | 25.1        |                   |
|      |              |               | 3          | 128    | 824.2       | 28.9        | 24.6        | 24.94             |
|      |              |               |            | 190    | 836.6       | 28.9        | 24.6        |                   |
|      |              |               |            | 251    | 848.8       | 28.9        | 24.6        |                   |
|      |              |               | 4          | 128    | 824.2       | 27.8        | 24.8        | 25.19             |
|      |              |               |            | 190    | 836.6       | 27.6        | 24.6        |                   |
|      |              |               |            | 251    | 848.8       | 28.1        | 25.1        |                   |
|      | EGPRS (8PSK) | MCS5          | 1          | 128    | 824.2       | 27.2        | 18.2        | 18.17             |
|      |              |               |            | 190    | 836.6       | 27.0        | 18.0        |                   |
|      |              |               |            | 251    | 848.8       | 27.0        | 18.0        |                   |
|      |              |               | 2          | 128    | 824.2       | 26.1        | 20.1        | 20.18             |
|      |              |               |            | 190    | 836.6       | 26.0        | 20.0        |                   |
|      |              |               |            | 251    | 848.8       | 26.0        | 20.0        |                   |
|      |              |               | 3          | 128    | 824.2       | 25.0        | 20.7        | 20.94             |
|      |              |               |            | 190    | 836.6       | 24.9        | 20.6        |                   |
|      |              |               |            | 251    | 848.8       | 25.0        | 20.7        |                   |
|      |              |               | 4          | 128    | 824.2       | 24.1        | 21.1        | 21.19             |
|      |              |               |            | 190    | 836.6       | 24.1        | 21.1        |                   |
|      |              |               |            | 251    | 848.8       | 24.2        | 21.2        |                   |

#### Notes:

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

- Head & Body-worn: GMSK Voice Mode
- Hotspot mode: GMSK (GPRS) mode with 4 time slots for Max power, based on the output power measurements above.
- SAR is not required for EGPRS (8PSK) mode because its output power is less than that of GPRS Mode

**GSM1900 Measured Results**

| Band | Mode         | Coding Scheme | Time Slots | Ch No. | Freq. (MHz) | Max. Pwr    |             | Frame Pwr Maximum |
|------|--------------|---------------|------------|--------|-------------|-------------|-------------|-------------------|
|      |              |               |            |        |             | Burst (dBm) | Frame (dBm) |                   |
| 1900 | GSM (Voice)  | CS1           | 1          | 512    | 1850.2      | 29.6        | 20.6        | 20.67             |
|      |              |               |            | 661    | 1880        | 29.3        | 20.3        |                   |
|      |              |               |            | 810    | 1909.8      | 29.4        | 20.4        |                   |
|      | GPRS (GMSK)  | CS1           | 1          | 512    | 1850.2      | 29.7        | 20.7        | 20.67             |
|      |              |               |            | 661    | 1880        | 29.4        | 20.4        |                   |
|      |              |               |            | 810    | 1909.8      | 29.4        | 20.4        |                   |
|      |              |               | 2          | 512    | 1850.2      | 27.6        | 21.6        | 21.68             |
|      |              |               |            | 661    | 1880        | 27.5        | 21.5        |                   |
|      |              |               |            | 810    | 1909.8      | 27.6        | 21.6        |                   |
|      |              |               | 3          | 512    | 1850.2      | 25.3        | 21.0        | 21.46             |
|      |              |               |            | 661    | 1880        | 25.3        | 21.0        |                   |
|      |              |               |            | 810    | 1909.8      | 25.4        | 21.1        |                   |
|      |              |               | 4          | 512    | 1850.2      | 24.6        | 21.6        | 21.69             |
|      |              |               |            | 661    | 1880        | 24.5        | 21.5        |                   |
|      |              |               |            | 810    | 1909.8      | 24.7        | 21.7        |                   |
|      | EGPRS (8PSK) | MCS5          | 1          | 512    | 1850.2      | 25.6        | 16.6        | 16.67             |
|      |              |               |            | 661    | 1880        | 25.5        | 16.5        |                   |
|      |              |               |            | 810    | 1909.8      | 25.7        | 16.7        |                   |
|      |              |               | 2          | 512    | 1850.2      | 24.5        | 18.5        | 18.68             |
|      |              |               |            | 661    | 1880        | 24.3        | 18.3        |                   |
|      |              |               |            | 810    | 1909.8      | 24.5        | 18.5        |                   |
|      |              |               | 3          | 512    | 1850.2      | 23.3        | 19.0        | 19.44             |
|      |              |               |            | 661    | 1880        | 23.2        | 18.9        |                   |
|      |              |               |            | 810    | 1909.8      | 23.4        | 19.1        |                   |
|      |              |               | 4          | 512    | 1850.2      | 22.5        | 19.5        | 19.69             |
|      |              |               |            | 661    | 1880        | 22.4        | 19.4        |                   |
|      |              |               |            | 810    | 1909.8      | 22.6        | 19.6        |                   |

**Notes:**

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

- Head & Body-worn: GMSK Voice Mode
- Hotspot mode: GMSK (GPRS) mode with 4 time slots for Max power, based on the output power measurements above.
- SAR is not required for EGPRS (8PSK) mode because its output power is less than that of GPRS Mode

## 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 |
| HSDPA Specific Settings | MPR (dB)                             | 0            | 0     | 0.5   | 0.5   |
|                         | $D_{ACK}$                            | 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 section 5.2 of 3GPP TS34.121. 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  | 15/1        |
|                               | $\beta_{hs}$                         | 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-DPDCCCH                            | 6             | 8     | 8     | 5     | 7           |
|                               | DHARQ                                | 0             | 0     | 0     | 0     | 0           |
|                               | AG Index                             | 20            | 12    | 15    | 17    | 21          |
|                               | ETFCI (from 34.121 Table C.11.1.3)   | 75            | 67    | 92    | 71    | 81          |
|                               | 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**

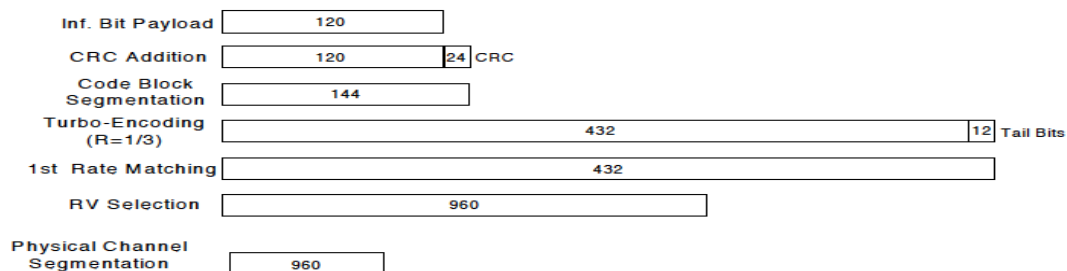
| Parameter During Connection setup | Unit | Value |
|-----------------------------------|------|-------|
| P-CPICH_Ec/Ior                    | dB   | -10   |
| P-CCPCH and SCH_Ec/Ior            | dB   | -12   |
| PICH_Ec/Ior                       | dB   | -15   |
| HS-PDSCH                          | 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 1      |       |       |       |
|                         | 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+**

Since 16QAM is not used for uplink, the uplink Category and release is same as HSUPA, i.e., Rel. 7 Therefore, the RF conducted power is not measured.

**W-CDMA Band II Measured Results**

| Band           | Mode     |                | UL Ch No. | Freq. (MHz) | MPR (dB) | Max. Pwr (dBm) |
|----------------|----------|----------------|-----------|-------------|----------|----------------|
| W-CDMA Band II | Rel 99   | RMC, 12.2 kbps | 9262      | 1852.4      | N/A      | 23.8           |
|                |          |                | 9400      | 1880.0      | N/A      | 23.8           |
|                |          |                | 9538      | 1907.6      | N/A      | 23.8           |
|                | HSDPA    | Subtest 1      | 9262      | 1852.4      | 0        | 23.8           |
|                |          |                | 9400      | 1880.0      | 0        | 23.7           |
|                |          |                | 9538      | 1907.6      | 0        | 23.8           |
|                |          | Subtest 2      | 9262      | 1852.4      | 0        | 23.7           |
|                |          |                | 9400      | 1880.0      | 0        | 23.8           |
|                |          |                | 9538      | 1907.6      | 0        | 23.8           |
|                |          | Subtest 3      | 9262      | 1852.4      | 0.5      | 23.3           |
|                |          |                | 9400      | 1880.0      | 0.5      | 23.4           |
|                |          |                | 9538      | 1907.6      | 0.5      | 23.4           |
|                |          | Subtest 4      | 9262      | 1852.4      | 0.5      | 23.2           |
|                |          |                | 9400      | 1880.0      | 0.5      | 23.3           |
|                |          |                | 9538      | 1907.6      | 0.5      | 23.2           |
|                | HSUPA    | Subtest 1      | 9262      | 1852.4      | 0        | 22.2           |
|                |          |                | 9400      | 1880.0      | 0        | 23.0           |
|                |          |                | 9538      | 1907.6      | 0        | 22.2           |
|                |          | Subtest 2      | 9262      | 1852.4      | 2        | 21.5           |
|                |          |                | 9400      | 1880.0      | 2        | 21.9           |
|                |          |                | 9538      | 1907.6      | 2        | 21.6           |
|                |          | Subtest 3      | 9262      | 1852.4      | 1        | 22.6           |
|                |          |                | 9400      | 1880.0      | 1        | 22.5           |
|                |          |                | 9538      | 1907.6      | 1        | 21.8           |
|                |          | Subtest 4      | 9262      | 1852.4      | 2        | 21.8           |
|                |          |                | 9400      | 1880.0      | 2        | 21.9           |
|                |          |                | 9538      | 1907.6      | 2        | 21.8           |
|                |          | Subtest 5      | 9262      | 1852.4      | 0        | 23.9           |
|                |          |                | 9400      | 1880.0      | 0        | 23.8           |
|                |          |                | 9538      | 1907.6      | 0        | 23.8           |
|                | DC-HSDPA | Subtest 1      | 9262      | 1852.4      | 0        | 23.9           |
|                |          |                | 9400      | 1880.0      | 0        | 23.9           |
|                |          |                | 9538      | 1907.6      | 0        | 23.9           |
|                |          | Subtest 2      | 9262      | 1852.4      | 0        | 23.9           |
|                |          |                | 9400      | 1880.0      | 0        | 23.9           |
|                |          |                | 9538      | 1907.6      | 0        | 23.9           |
|                |          | Subtest 3      | 9262      | 1852.4      | 0.5      | 23.4           |
|                |          |                | 9400      | 1880.0      | 0.5      | 23.3           |
|                |          |                | 9538      | 1907.6      | 0.5      | 23.3           |
|                |          | Subtest 4      | 9262      | 1852.4      | 0.5      | 23.4           |
|                |          |                | 9400      | 1880.0      | 0.5      | 23.3           |
|                |          |                | 9538      | 1907.6      | 0.5      | 23.4           |

**W-CDMA Band IV Measured Results**

| Band           | Mode     |                | UL Ch No. | Freq. (MHz) | MPR (dB) | Max. Pwr (dBm) |
|----------------|----------|----------------|-----------|-------------|----------|----------------|
| W-CDMA Band IV | Rel 99   | RMC, 12.2 kbps | 1312      | 1712.4      | N/A      | 23.8           |
|                |          |                | 1413      | 1732.6      | N/A      | 23.8           |
|                |          |                | 1513      | 1752.6      | N/A      | 23.8           |
|                | HSDPA    | Subtest 1      | 1312      | 1712.4      | 0        | 23.8           |
|                |          |                | 1413      | 1732.6      | 0        | 23.8           |
|                |          |                | 1513      | 1752.6      | 0        | 23.9           |
|                |          | Subtest 2      | 1312      | 1712.4      | 0        | 23.5           |
|                |          |                | 1413      | 1732.6      | 0        | 23.4           |
|                |          |                | 1513      | 1752.6      | 0        | 23.4           |
|                |          | Subtest 3      | 1312      | 1712.4      | 0.5      | 23.2           |
|                |          |                | 1413      | 1732.6      | 0.5      | 23.1           |
|                |          |                | 1513      | 1752.6      | 0.5      | 23.2           |
|                |          | Subtest 4      | 1312      | 1712.4      | 0.5      | 23.2           |
|                |          |                | 1413      | 1732.6      | 0.5      | 23.1           |
|                |          |                | 1513      | 1752.6      | 0.5      | 23.2           |
|                | HSUPA    | Subtest 1      | 1312      | 1712.4      | 0        | 22.9           |
|                |          |                | 1413      | 1732.6      | 0        | 22.9           |
|                |          |                | 1513      | 1752.6      | 0        | 22.9           |
|                |          | Subtest 2      | 1312      | 1712.4      | 2        | 21.8           |
|                |          |                | 1413      | 1732.6      | 2        | 21.8           |
|                |          |                | 1513      | 1752.6      | 2        | 21.8           |
|                |          | Subtest 3      | 1312      | 1712.4      | 1        | 22.1           |
|                |          |                | 1413      | 1732.6      | 1        | 22.1           |
|                |          |                | 1513      | 1752.6      | 1        | 22.0           |
|                |          | Subtest 4      | 1312      | 1712.4      | 2        | 21.9           |
|                |          |                | 1413      | 1732.6      | 2        | 21.9           |
|                |          |                | 1513      | 1752.6      | 2        | 21.9           |
|                |          | Subtest 5      | 1312      | 1712.4      | 0        | 23.9           |
|                |          |                | 1413      | 1732.6      | 0        | 23.8           |
|                |          |                | 1513      | 1752.6      | 0        | 23.9           |
|                | DC-HSDPA | Subtest 1      | 1312      | 1712.4      | 0        | 23.9           |
|                |          |                | 1413      | 1732.6      | 0        | 23.8           |
|                |          |                | 1513      | 1752.6      | 0        | 23.8           |
|                |          | Subtest 2      | 1312      | 1712.4      | 0        | 23.9           |
|                |          |                | 1413      | 1732.6      | 0        | 23.9           |
|                |          |                | 1513      | 1752.6      | 0        | 23.9           |
|                |          | Subtest 3      | 1312      | 1712.4      | 0.5      | 23.2           |
|                |          |                | 1413      | 1732.6      | 0.5      | 23.1           |
|                |          |                | 1513      | 1752.6      | 0.5      | 23.1           |
|                |          | Subtest 4      | 1312      | 1712.4      | 0.5      | 23.2           |
|                |          |                | 1413      | 1732.6      | 0.5      | 23.2           |
|                |          |                | 1513      | 1752.6      | 0.5      | 23.2           |

**W-CDMA Band V Measured Results**

| Band          | Mode     |                | UL Ch No. | Freq. (MHz) | MPR (dB) | Max. Pwr (dBm) |
|---------------|----------|----------------|-----------|-------------|----------|----------------|
| W-CDMA Band V | Rel 99   | RMC, 12.2 kbps | 4132      | 826.4       | N/A      | 24.6           |
|               |          |                | 4183      | 836.6       | N/A      | 24.5           |
|               |          |                | 4233      | 846.6       | N/A      | 24.5           |
|               | HSDPA    | Subtest 1      | 4132      | 826.4       | 0        | 24.3           |
|               |          |                | 4183      | 836.6       | 0        | 24.2           |
|               |          |                | 4233      | 846.6       | 0        | 24.2           |
|               |          | Subtest 2      | 4132      | 826.4       | 0        | 24.4           |
|               |          |                | 4183      | 836.6       | 0        | 24.2           |
|               |          |                | 4233      | 846.6       | 0        | 24.3           |
|               |          | Subtest 3      | 4132      | 826.4       | 0.5      | 23.8           |
|               |          |                | 4183      | 836.6       | 0.5      | 23.8           |
|               |          |                | 4233      | 846.6       | 0.5      | 23.8           |
|               |          | Subtest 4      | 4132      | 826.4       | 0.5      | 23.9           |
|               |          |                | 4183      | 836.6       | 0.5      | 23.7           |
|               |          |                | 4233      | 846.6       | 0.5      | 23.8           |
|               | HSUPA    | Subtest 1      | 4132      | 826.4       | 0        | 23.2           |
|               |          |                | 4183      | 836.6       | 0        | 23.1           |
|               |          |                | 4233      | 846.6       | 0        | 23.3           |
|               |          | Subtest 2      | 4132      | 826.4       | 2        | 22.2           |
|               |          |                | 4183      | 836.6       | 2        | 22.2           |
|               |          |                | 4233      | 846.6       | 2        | 21.8           |
|               |          | Subtest 3      | 4132      | 826.4       | 1        | 22.2           |
|               |          |                | 4183      | 836.6       | 1        | 22.1           |
|               |          |                | 4233      | 846.6       | 1        | 22.1           |
|               |          | Subtest 4      | 4132      | 826.4       | 2        | 22.7           |
|               |          |                | 4183      | 836.6       | 2        | 22.7           |
|               |          |                | 4233      | 846.6       | 2        | 22.6           |
|               |          | Subtest 5      | 4132      | 826.4       | 0        | 24.4           |
|               |          |                | 4183      | 836.6       | 0        | 24.2           |
|               |          |                | 4233      | 846.6       | 0        | 24.3           |
|               | DC-HSDPA | Subtest 1      | 4132      | 826.4       | 0        | 24.4           |
|               |          |                | 4183      | 836.6       | 0        | 24.5           |
|               |          |                | 4233      | 846.6       | 0        | 24.4           |
|               |          | Subtest 2      | 4132      | 826.4       | 0        | 24.4           |
|               |          |                | 4183      | 836.6       | 0        | 24.4           |
|               |          |                | 4233      | 846.6       | 0        | 24.4           |
|               |          | Subtest 3      | 4132      | 826.4       | 0.5      | 23.9           |
|               |          |                | 4183      | 836.6       | 0.5      | 23.8           |
|               |          |                | 4233      | 846.6       | 0.5      | 23.8           |
|               |          | Subtest 4      | 4132      | 826.4       | 0.5      | 23.9           |
|               |          |                | 4183      | 836.6       | 0.5      | 23.8           |
|               |          |                | 4233      | 846.6       | 0.5      | 23.8           |

### 9.3. CDMA

#### 1x Advanced Setup Procedures used to establish the test signals

##### Call box setup procedure

- Protocol Rev > 6 (IS-2000-0)
- System ID: 331; NID: 65535, Reg. Ch. #.:
- Radio Config (RC) > Fwd11,Rvs8
- Service Option (SO) Setup > SO75 (Loopback)
- Traffic Data Rate > Full
- Rvs Power Ctrl > All Up bits (Maximum TxPout)
- Reverse Power Control Mode: 00-200 to 400 bps
- Smart blanking was disabled.

#### CDMA BC0 Measured Results

| Band | Mode          |                                                              | Ch No. | Freq. (MHz) | Max. Pwr (dBm) |
|------|---------------|--------------------------------------------------------------|--------|-------------|----------------|
| BC 0 | 1xRTT         | RC1 SO55 (Loopback)                                          | 1013   | 824.70      | 24.7           |
|      |               |                                                              | 384    | 836.52      | 24.6           |
|      |               |                                                              | 777    | 848.31      | 24.7           |
|      |               | RC3 SO55 (Loopback)                                          | 1013   | 824.70      | 24.6           |
|      |               |                                                              | 384    | 836.52      | 24.6           |
|      |               |                                                              | 777    | 848.31      | 24.6           |
|      |               | RC3 SO32 (+F-SCH)                                            | 1013   | 824.70      | 24.6           |
|      |               |                                                              | 384    | 836.52      | 24.6           |
|      |               |                                                              | 777    | 848.31      | 24.6           |
|      | 1xAdvanced    | Fwd11/Rvs8 SO75 (Loopback)                                   | 1013   | 824.70      | 24.7           |
|      |               |                                                              | 384    | 836.52      | 24.6           |
|      |               |                                                              | 777    | 848.31      | 24.5           |
|      | 1xEVDO Rel. 0 | FTAP Rate: 307.2 kbps(2 slot, QPSK)<br>RTAP Rate: 153.6 kbps | 1013   | 824.70      | 24.5           |
|      |               |                                                              | 384    | 836.52      | 24.4           |
|      |               |                                                              | 777    | 848.31      | 24.4           |
|      | 1xEVDO Rev. A | FETAP: 307.2k, QPSK/ ACK<br>RETAP: 4096                      | 1013   | 824.70      | 24.5           |
|      |               |                                                              | 384    | 836.52      | 24.4           |
|      |               |                                                              | 777    | 848.31      | 24.4           |

#### CDMA BC1 Measured Results

| Band | Mode          |                                                              | Ch No. | Freq. (MHz) | Max. Pwr (dBm) |
|------|---------------|--------------------------------------------------------------|--------|-------------|----------------|
| BC 1 | 1xRTT         | RC1 SO55 (Loopback)                                          | 25     | 1851.25     | 24.7           |
|      |               |                                                              | 600    | 1880.00     | 24.7           |
|      |               |                                                              | 1175   | 1908.75     | 24.7           |
|      |               | RC3 SO55 (Loopback)                                          | 25     | 1851.25     | 24.6           |
|      |               |                                                              | 600    | 1880.00     | 24.6           |
|      |               |                                                              | 1175   | 1908.75     | 24.6           |
|      |               | RC3 SO32 (+F-SCH)                                            | 25     | 1851.25     | 24.7           |
|      |               |                                                              | 600    | 1880.00     | 24.6           |
|      |               |                                                              | 1175   | 1908.75     | 24.5           |
|      | 1xAdvanced    | Fwd11/Rvs8 SO75 (Loopback)                                   | 25     | 1851.25     | 24.7           |
|      |               |                                                              | 600    | 1880.00     | 24.5           |
|      |               |                                                              | 1175   | 1908.75     | 24.6           |
|      | 1xEVDO Rel. 0 | FTAP Rate: 307.2 kbps(2 slot, QPSK)<br>RTAP Rate: 153.6 kbps | 25     | 1851.25     | 23.7           |
|      |               |                                                              | 600    | 1880.00     | 23.7           |
|      |               |                                                              | 1175   | 1908.75     | 23.7           |
|      | 1xEVDO Rev. A | FETAP: 307.2k, QPSK/ ACK<br>RETAP: 4096                      | 25     | 1851.25     | 23.6           |
|      |               |                                                              | 600    | 1880.00     | 23.7           |
|      |               |                                                              | 1175   | 1908.75     | 23.7           |

**CDMA BC10 Measured Results**

| Band  | Mode             |                                                              | Ch No. | Freq.<br>(MHz) | Max. Pwr<br>(dBm) |
|-------|------------------|--------------------------------------------------------------|--------|----------------|-------------------|
| BC 10 | 1xRTT            | RC1 SO55<br>(Loopback)                                       | 476    | 817.9          | 24.6              |
|       |                  |                                                              | 580    | 820.5          | 24.6              |
|       |                  |                                                              | 684    | 823.1          | 24.6              |
|       |                  | RC3 SO55<br>(Loopback)                                       | 476    | 817.9          | 24.6              |
|       |                  |                                                              | 580    | 820.5          | 24.6              |
|       |                  |                                                              | 684    | 823.1          | 24.5              |
|       |                  | RC3 SO32<br>(+F-SCH)                                         | 476    | 817.9          | 24.6              |
|       |                  |                                                              | 580    | 820.5          | 24.6              |
|       |                  |                                                              | 684    | 823.1          | 24.6              |
|       | 1xAdvanced       | Fwd11/Rvs8<br>SO75 (Loopback)                                | 476    | 817.9          | 24.6              |
|       |                  |                                                              | 580    | 820.5          | 24.6              |
|       |                  |                                                              | 684    | 823.1          | 24.6              |
|       | 1xEVDO<br>Rel. 0 | FTAP Rate: 307.2 kbps(2 slot, QPSK)<br>RTAP Rate: 153.6 kbps | 476    | 817.9          | 24.5              |
|       |                  |                                                              | 580    | 820.5          | 24.5              |
|       |                  |                                                              | 684    | 823.1          | 24.5              |
|       | 1xEVDO<br>Rev. A | FETAP: 307.2k, QPSK/ ACK<br>RETAP: 4096                      | 476    | 817.9          | 24.5              |
|       |                  |                                                              | 580    | 820.5          | 24.5              |
|       |                  |                                                              | 684    | 823.1          | 24.4              |

## 9.4. 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 3**

| Modulation | Channel bandwidth / Transmission bandwidth (RB) |         |       |        |        |        | 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      |
| 64 QAM     | > 5                                             | > 4     | > 8   | > 12   | > 16   | > 18   | ≤ 2      |

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 (sub-clause) | 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                   | NA            |
| NS_03                    | 6.6.2.2.1                 | 2, 4, 10, 23, 25, 35, 36 | 3                       | >5                            | ≤ 1           |
|                          |                           |                          | 5                       | >6                            | ≤ 1           |
|                          |                           |                          | 10                      | >6                            | ≤ 1           |
|                          |                           |                          | 15                      | >8                            | ≤ 1           |
|                          |                           |                          | 20                      | >10                           | ≤ 1           |
| NS_04                    | 6.6.2.2.2                 | 41                       | 5                       | >6                            | ≤ 1           |
|                          |                           |                          | 10, 15, 20              | See Table 6.2.4-4             |               |
| NS_05                    | 6.6.3.3.1                 | 1                        | 10,15,20                | ≥ 50                          | ≤ 1           |
| NS_06                    | 6.6.2.2.3                 | 12, 13, 14, 17           | 1.4, 3, 5, 10           | Table 5.6-1                   | n/a           |
| NS_07                    | 6.6.2.2.3<br>6.6.3.3.2    | 13                       | 10                      | Table 6.2.4-2                 | Table 6.2.4-2 |
| NS_08                    | 6.6.3.3.3                 | 19                       | 10, 15                  | > 44                          | ≤ 3           |
| NS_09                    | 6.6.3.3.4                 | 21                       | 10, 15                  | > 40                          | ≤ 1           |
|                          |                           |                          |                         | > 55                          | ≤ 2           |
| NS_10                    |                           | 20                       | 15, 20                  | Table 6.2.4-3                 | Table 6.2.4-3 |
| NS_11                    | 6.6.2.2.1                 | 23 <sup>1</sup>          | 1.4, 3, 5, 10           | Table 6.2.4-5                 | Table 6.2.4-5 |
| ..                       |                           |                          |                         |                               |               |
| NS_32                    | -                         | -                        | -                       | -                             | -             |

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

**LTE Band 2 Measured Results**

| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |          |            |
|------------|----------|-------|---------------|-----------|------------|--------------------|----------|------------|
|            |          |       |               |           |            | 1860 MHz           | 1880 MHz | 1900 MHz   |
| LTE Band 2 | 20       | QPSK  | 1             | 0         | 0          | 23.4               | 23.4     | 23.4       |
|            |          |       | 1             | 49        | 0          | 23.2               | 23.4     | 23.4       |
|            |          |       | 1             | 99        | 0          | 23.1               | 23.4     | 23.4       |
|            |          |       | 50            | 0         | 1          | 22.4               | 22.2     | 22.3       |
|            |          |       | 50            | 24        | 1          | 22.3               | 22.2     | 22.4       |
|            |          |       | 50            | 50        | 1          | 22.3               | 22.3     | 22.4       |
|            |          | 16QAM | 100           | 0         | 1          | 22.3               | 22.3     | 22.4       |
|            |          |       | 1             | 0         | 1          | 22.4               | 22.4     | 22.4       |
|            |          |       | 1             | 49        | 1          | 22.4               | 22.2     | 22.4       |
|            |          |       | 1             | 99        | 1          | 22.1               | 22.2     | 22.4       |
|            |          |       | 50            | 0         | 2          | 21.2               | 21.0     | 21.2       |
|            |          |       | 50            | 24        | 2          | 21.2               | 21.0     | 21.3       |
|            |          |       | 50            | 50        | 2          | 21.2               | 21.2     | 21.2       |
|            |          |       | 100           | 0         | 2          | 21.2               | 21.2     | 21.3       |
| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |          |            |
|            |          |       |               |           |            | 1857.5 MHz         | 1880 MHz | 1902.5 MHz |
| LTE Band 2 | 15       | QPSK  | 1             | 0         | 0          | 23.4               | 23.4     | 23.4       |
|            |          |       | 1             | 37        | 0          | 23.2               | 23.4     | 23.4       |
|            |          |       | 1             | 74        | 0          | 23.2               | 23.3     | 23.3       |
|            |          |       | 36            | 0         | 1          | 22.1               | 22.1     | 22.3       |
|            |          |       | 36            | 20        | 1          | 22.1               | 22.3     | 22.3       |
|            |          |       | 36            | 39        | 1          | 22.2               | 22.2     | 22.2       |
|            |          | 16QAM | 75            | 0         | 1          | 22.2               | 22.2     | 22.4       |
|            |          |       | 1             | 0         | 1          | 22.4               | 22.4     | 22.4       |
|            |          |       | 1             | 37        | 1          | 22.1               | 22.4     | 22.3       |
|            |          |       | 1             | 74        | 1          | 22.1               | 22.3     | 22.3       |
|            |          |       | 36            | 0         | 2          | 21.0               | 21.0     | 21.2       |
|            |          |       | 36            | 20        | 2          | 21.0               | 21.1     | 21.2       |
|            |          |       | 36            | 39        | 2          | 21.0               | 21.1     | 21.1       |
|            |          |       | 75            | 0         | 2          | 21.0               | 21.0     | 21.2       |
| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |          |            |
|            |          |       |               |           |            | 1855 MHz           | 1880 MHz | 1905 MHz   |
| LTE Band 2 | 10       | QPSK  | 1             | 0         | 0          | 23.3               | 23.3     | 23.4       |
|            |          |       | 1             | 25        | 0          | 23.4               | 23.1     | 23.3       |
|            |          |       | 1             | 49        | 0          | 23.3               | 23.1     | 23.1       |
|            |          |       | 25            | 0         | 1          | 22.0               | 22.0     | 21.9       |
|            |          |       | 25            | 12        | 1          | 22.2               | 22.2     | 21.9       |
|            |          |       | 25            | 25        | 1          | 22.0               | 22.0     | 21.9       |
|            |          | 16QAM | 50            | 0         | 1          | 22.1               | 22.0     | 22.0       |
|            |          |       | 1             | 0         | 1          | 22.4               | 22.3     | 22.3       |
|            |          |       | 1             | 25        | 1          | 22.2               | 22.2     | 22.2       |
|            |          |       | 1             | 49        | 1          | 22.3               | 22.2     | 22.3       |
|            |          |       | 25            | 0         | 2          | 20.8               | 20.9     | 20.7       |
|            |          |       | 25            | 12        | 2          | 21.0               | 20.9     | 20.8       |
|            |          |       | 25            | 25        | 2          | 20.8               | 20.8     | 20.9       |
|            |          |       | 50            | 0         | 2          | 20.9               | 20.8     | 20.9       |

**LTE Band 2 Measured Results (continued)**

| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |          |            |
|------------|----------|-------|---------------|-----------|------------|--------------------|----------|------------|
|            |          |       |               |           |            | 1852.5 MHz         | 1880 MHz | 1907.5 MHz |
| LTE Band 2 | 5        | QPSK  | 1             | 0         | 0          | 23.4               | 23.4     | 23.2       |
|            |          |       | 1             | 12        | 0          | 23.2               | 23.1     | 23.2       |
|            |          |       | 1             | 24        | 0          | 23.4               | 23.3     | 23.0       |
|            |          |       | 12            | 0         | 1          | 22.0               | 22.0     | 22.0       |
|            |          |       | 12            | 7         | 1          | 22.0               | 22.0     | 22.0       |
|            |          |       | 12            | 13        | 1          | 22.0               | 22.1     | 22.0       |
|            |          |       | 25            | 0         | 1          | 22.0               | 22.0     | 22.1       |
|            |          | 16QAM | 1             | 0         | 1          | 22.4               | 22.1     | 21.9       |
|            |          |       | 1             | 12        | 1          | 22.4               | 22.1     | 22.0       |
|            |          |       | 1             | 24        | 1          | 22.4               | 22.0     | 21.9       |
|            |          |       | 12            | 0         | 2          | 21.0               | 20.9     | 20.8       |
|            |          |       | 12            | 7         | 2          | 21.0               | 21.0     | 20.8       |
|            |          |       | 12            | 13        | 2          | 21.0               | 21.0     | 20.9       |
|            |          |       | 25            | 0         | 2          | 20.9               | 20.9     | 20.9       |
| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |          |            |
|            |          |       |               |           |            | 1851.5 MHz         | 1880 MHz | 1908.5 MHz |
| LTE Band 2 | 3        | QPSK  | 1             | 0         | 0          | 23.3               | 23.2     | 23.2       |
|            |          |       | 1             | 8         | 0          | 23.3               | 23.3     | 23.4       |
|            |          |       | 1             | 14        | 0          | 23.2               | 23.2     | 23.1       |
|            |          |       | 8             | 0         | 1          | 22.0               | 22.1     | 22.0       |
|            |          |       | 8             | 4         | 1          | 22.2               | 22.0     | 22.0       |
|            |          |       | 8             | 7         | 1          | 22.1               | 22.0     | 21.9       |
|            |          |       | 15            | 0         | 1          | 22.1               | 22.0     | 22.0       |
|            |          | 16QAM | 1             | 0         | 1          | 22.3               | 22.2     | 22.3       |
|            |          |       | 1             | 8         | 1          | 22.4               | 22.2     | 22.4       |
|            |          |       | 1             | 14        | 1          | 22.4               | 22.4     | 22.2       |
|            |          |       | 8             | 0         | 2          | 20.9               | 20.9     | 20.7       |
|            |          |       | 8             | 4         | 2          | 21.0               | 20.9     | 20.7       |
|            |          |       | 8             | 7         | 2          | 20.9               | 20.8     | 20.7       |
|            |          |       | 15            | 0         | 2          | 20.9               | 20.9     | 20.7       |
| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |          |            |
|            |          |       |               |           |            | 1850.7 MHz         | 1880 MHz | 1909.3 MHz |
| LTE Band 2 | 1.4      | QPSK  | 1             | 0         | 0          | 23.4               | 23.3     | 23.0       |
|            |          |       | 1             | 3         | 0          | 23.4               | 23.3     | 23.2       |
|            |          |       | 1             | 5         | 0          | 23.4               | 23.2     | 23.0       |
|            |          |       | 3             | 0         | 0          | 23.2               | 23.2     | 22.9       |
|            |          |       | 3             | 1         | 0          | 23.2               | 23.3     | 23.0       |
|            |          |       | 3             | 3         | 0          | 23.2               | 23.2     | 23.0       |
|            |          |       | 6             | 0         | 1          | 22.0               | 22.0     | 22.0       |
|            |          | 16QAM | 1             | 0         | 1          | 22.3               | 22.3     | 21.9       |
|            |          |       | 1             | 3         | 1          | 22.2               | 22.4     | 22.1       |
|            |          |       | 1             | 5         | 1          | 22.3               | 22.3     | 21.8       |
|            |          |       | 3             | 0         | 1          | 21.8               | 22.0     | 21.8       |
|            |          |       | 3             | 1         | 1          | 21.9               | 22.0     | 21.8       |
|            |          |       | 3             | 3         | 1          | 21.9               | 21.9     | 21.9       |
|            |          |       | 6             | 0         | 2          | 20.8               | 20.8     | 20.8       |

**LTE Band 4 Measured Results**

| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |            |            |
|------------|----------|-------|---------------|-----------|------------|--------------------|------------|------------|
|            |          |       |               |           |            | 1732.5 MHz         |            |            |
| LTE Band 4 | 20       | QPSK  | 1             | 0         | 0          | 23.4               |            |            |
|            |          |       | 1             | 49        | 0          | 23.2               |            |            |
|            |          |       | 1             | 99        | 0          | 23.1               |            |            |
|            |          |       | 50            | 0         | 1          | 22.2               |            |            |
|            |          |       | 50            | 24        | 1          | 22.1               |            |            |
|            |          |       | 50            | 50        | 1          | 22.0               |            |            |
|            |          |       | 100           | 0         | 1          | 22.1               |            |            |
|            |          | 16QAM | 1             | 0         | 1          | 22.2               |            |            |
|            |          |       | 1             | 49        | 1          | 22.0               |            |            |
|            |          |       | 1             | 99        | 1          | 21.9               |            |            |
|            |          |       | 50            | 0         | 2          | 21.1               |            |            |
|            |          |       | 50            | 24        | 2          | 21.0               |            |            |
|            |          |       | 50            | 50        | 2          | 20.9               |            |            |
|            |          |       | 100           | 0         | 2          | 21.0               |            |            |
| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |            |            |
|            |          |       |               |           |            | 1717.5 MHz         | 1732.5 MHz | 1747.5 MHz |
| LTE Band 4 | 15       | QPSK  | 1             | 0         | 0          | 23.4               | 23.4       | 23.3       |
|            |          |       | 1             | 37        | 0          | 23.2               | 23.4       | 23.4       |
|            |          |       | 1             | 74        | 0          | 23.1               | 23.3       | 23.4       |
|            |          |       | 36            | 0         | 1          | 22.1               | 22.1       | 22.3       |
|            |          |       | 36            | 20        | 1          | 22.1               | 22.1       | 22.3       |
|            |          |       | 36            | 39        | 1          | 22.0               | 22.0       | 22.3       |
|            |          |       | 75            | 0         | 1          | 22.0               | 22.0       | 22.3       |
|            |          | 16QAM | 1             | 0         | 1          | 22.0               | 22.1       | 22.3       |
|            |          |       | 1             | 37        | 1          | 22.0               | 22.1       | 22.3       |
|            |          |       | 1             | 74        | 1          | 21.7               | 22.0       | 22.3       |
|            |          |       | 36            | 0         | 2          | 20.9               | 21.0       | 21.1       |
|            |          |       | 36            | 20        | 2          | 21.0               | 21.1       | 21.1       |
|            |          |       | 36            | 39        | 2          | 20.9               | 21.0       | 21.1       |
|            |          |       | 75            | 0         | 2          | 20.9               | 21.0       | 21.1       |
| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |            |            |
|            |          |       |               |           |            | 1715 MHz           | 1732.5 MHz | 1750 MHz   |
| LTE Band 4 | 10       | QPSK  | 1             | 0         | 0          | 23.4               | 23.3       | 23.2       |
|            |          |       | 1             | 25        | 0          | 23.4               | 23.0       | 23.3       |
|            |          |       | 1             | 49        | 0          | 23.1               | 23.1       | 23.1       |
|            |          |       | 25            | 0         | 1          | 22.1               | 22.0       | 22.0       |
|            |          |       | 25            | 12        | 1          | 22.0               | 22.0       | 22.0       |
|            |          |       | 25            | 25        | 1          | 22.1               | 21.9       | 22.0       |
|            |          |       | 50            | 0         | 1          | 22.2               | 21.9       | 22.0       |
|            |          | 16QAM | 1             | 0         | 1          | 22.3               | 22.3       | 22.1       |
|            |          |       | 1             | 25        | 1          | 22.2               | 21.7       | 22.0       |
|            |          |       | 1             | 49        | 1          | 22.1               | 22.0       | 22.1       |
|            |          |       | 25            | 0         | 2          | 21.1               | 20.8       | 20.9       |
|            |          |       | 25            | 12        | 2          | 21.0               | 20.9       | 21.0       |
|            |          |       | 25            | 25        | 2          | 21.0               | 20.7       | 21.0       |
|            |          |       | 50            | 0         | 2          | 21.0               | 20.8       | 20.9       |

**Note(s):**

20 MHz 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 4 Measured Results (continued)**

| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |            |            |
|------------|----------|-------|---------------|-----------|------------|--------------------|------------|------------|
|            |          |       |               |           |            | 1712.5 MHz         | 1732.5 MHz | 1752.5 MHz |
| LTE Band 4 | 5        | QPSK  | 1             | 0         | 0          | 23.4               | 23.4       | 23.4       |
|            |          |       | 1             | 12        | 0          | 23.2               | 23.3       | 23.0       |
|            |          |       | 1             | 24        | 0          | 23.3               | 23.4       | 23.4       |
|            |          |       | 12            | 0         | 1          | 22.0               | 21.9       | 22.1       |
|            |          |       | 12            | 7         | 1          | 22.1               | 21.9       | 22.1       |
|            |          |       | 12            | 13        | 1          | 22.1               | 22.0       | 22.1       |
|            |          |       | 25            | 0         | 1          | 22.1               | 22.0       | 22.1       |
|            |          | 16QAM | 1             | 0         | 1          | 22.2               | 22.3       | 22.1       |
|            |          |       | 1             | 12        | 1          | 21.8               | 21.6       | 22.1       |
|            |          |       | 1             | 24        | 1          | 22.1               | 22.3       | 22.3       |
|            |          |       | 12            | 0         | 2          | 20.9               | 21.0       | 21.0       |
|            |          |       | 12            | 7         | 2          | 21.0               | 20.9       | 21.1       |
|            |          |       | 12            | 13        | 2          | 21.0               | 20.9       | 21.0       |
|            |          |       | 25            | 0         | 2          | 21.0               | 20.9       | 21.0       |
| LTE Band 4 | 3        | QPSK  | 1             | 0         | 0          | 23.2               | 23.2       | 23.4       |
|            |          |       | 1             | 8         | 0          | 23.4               | 23.2       | 23.3       |
|            |          |       | 1             | 14        | 0          | 23.1               | 23.0       | 23.4       |
|            |          |       | 8             | 0         | 1          | 22.1               | 22.0       | 22.0       |
|            |          |       | 8             | 4         | 1          | 22.1               | 21.9       | 22.2       |
|            |          |       | 8             | 7         | 1          | 22.0               | 21.9       | 22.1       |
|            |          |       | 15            | 0         | 1          | 22.1               | 21.9       | 22.1       |
|            |          | 16QAM | 1             | 0         | 1          | 22.4               | 21.7       | 22.4       |
|            |          |       | 1             | 8         | 1          | 22.4               | 22.0       | 22.2       |
|            |          |       | 1             | 14        | 1          | 22.2               | 21.7       | 22.4       |
|            |          |       | 8             | 0         | 2          | 21.0               | 20.8       | 20.9       |
|            |          |       | 8             | 4         | 2          | 20.9               | 20.9       | 21.0       |
|            |          |       | 8             | 7         | 2          | 20.9               | 20.9       | 20.9       |
|            |          |       | 15            | 0         | 2          | 21.0               | 20.7       | 21.1       |
| LTE Band 4 | 1.4      | QPSK  | 1             | 0         | 0          | 23.4               | 23.2       | 23.2       |
|            |          |       | 1             | 3         | 0          | 23.3               | 23.1       | 23.3       |
|            |          |       | 1             | 5         | 0          | 23.3               | 23.0       | 23.4       |
|            |          |       | 3             | 0         | 0          | 23.2               | 23.1       | 23.1       |
|            |          |       | 3             | 1         | 0          | 23.3               | 23.0       | 23.3       |
|            |          |       | 3             | 3         | 0          | 23.3               | 23.0       | 23.1       |
|            |          |       | 6             | 0         | 1          | 22.0               | 21.8       | 22.1       |
|            |          | 16QAM | 1             | 0         | 1          | 22.4               | 21.7       | 22.1       |
|            |          |       | 1             | 3         | 1          | 22.2               | 21.8       | 22.3       |
|            |          |       | 1             | 5         | 1          | 22.2               | 21.7       | 22.1       |
|            |          |       | 3             | 0         | 1          | 21.9               | 21.8       | 21.9       |
|            |          |       | 3             | 1         | 1          | 21.9               | 21.7       | 22.0       |
|            |          |       | 3             | 3         | 1          | 21.9               | 21.7       | 21.9       |
|            |          |       | 6             | 0         | 2          | 21.0               | 20.7       | 21.0       |

**LTE Band 5 Measured Results**

SAR for LTE Band 5 is covered by LTE Band 26 due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

**LTE Band 7 Measured Results**

| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |          |            |
|------------|----------|-------|---------------|-----------|------------|--------------------|----------|------------|
|            |          |       |               |           |            | 2510 MHz           | 2535 MHz | 2560 MHz   |
| LTE Band 7 | 20       | QPSK  | 1             | 0         | 0          | 23.5               | 23.5     | 22.8       |
|            |          |       | 1             | 49        | 0          | 23.5               | 23.4     | 23.0       |
|            |          |       | 1             | 99        | 0          | 23.2               | 23.3     | 22.8       |
|            |          |       | 50            | 0         | 1          | 22.5               | 22.3     | 22.1       |
|            |          |       | 50            | 24        | 1          | 22.4               | 22.3     | 22.1       |
|            |          |       | 50            | 50        | 1          | 22.3               | 22.2     | 22.0       |
|            |          |       | 100           | 0         | 1          | 22.5               | 22.3     | 22.0       |
|            |          | 16QAM | 1             | 0         | 1          | 22.4               | 22.0     | 21.9       |
|            |          |       | 1             | 49        | 1          | 22.3               | 22.0     | 22.2       |
|            |          |       | 1             | 99        | 1          | 22.1               | 21.8     | 21.9       |
|            |          |       | 50            | 0         | 2          | 21.6               | 21.3     | 21.1       |
|            |          |       | 50            | 24        | 2          | 21.4               | 21.3     | 21.1       |
|            |          |       | 50            | 50        | 2          | 21.6               | 21.2     | 20.8       |
|            |          |       | 100           | 0         | 2          | 21.4               | 21.2     | 21.1       |
| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |          |            |
|            |          |       |               |           |            | 2507.5 MHz         | 2535 MHz | 2562.5 MHz |
| LTE Band 7 | 15       | QPSK  | 1             | 0         | 0          | 23.2               | 23.4     | 23.2       |
|            |          |       | 1             | 37        | 0          | 23.4               | 23.4     | 23.3       |
|            |          |       | 1             | 74        | 0          | 23.3               | 23.1     | 23.1       |
|            |          |       | 36            | 0         | 1          | 22.5               | 22.4     | 22.1       |
|            |          |       | 36            | 20        | 1          | 22.6               | 22.4     | 22.2       |
|            |          |       | 36            | 39        | 1          | 22.4               | 22.3     | 22.0       |
|            |          |       | 75            | 0         | 1          | 22.5               | 22.3     | 22.2       |
|            |          | 16QAM | 1             | 0         | 1          | 22.4               | 21.9     | 21.7       |
|            |          |       | 1             | 37        | 1          | 22.3               | 22.0     | 21.9       |
|            |          |       | 1             | 74        | 1          | 22.4               | 21.7     | 21.7       |
|            |          |       | 36            | 0         | 2          | 21.5               | 21.3     | 21.1       |
|            |          |       | 36            | 20        | 2          | 21.5               | 21.3     | 21.3       |
|            |          |       | 36            | 39        | 2          | 21.4               | 21.2     | 21.1       |
|            |          |       | 75            | 0         | 2          | 21.4               | 21.3     | 21.1       |
| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |          |            |
|            |          |       |               |           |            | 2505 MHz           | 2535 MHz | 2565 MHz   |
| LTE Band 7 | 10       | QPSK  | 1             | 0         | 0          | 23.4               | 23.3     | 23.4       |
|            |          |       | 1             | 25        | 0          | 23.5               | 23.4     | 23.7       |
|            |          |       | 1             | 49        | 0          | 23.0               | 23.1     | 23.3       |
|            |          |       | 25            | 0         | 1          | 22.4               | 22.3     | 22.2       |
|            |          |       | 25            | 12        | 1          | 22.4               | 22.3     | 22.2       |
|            |          |       | 25            | 25        | 1          | 22.4               | 22.3     | 22.2       |
|            |          |       | 50            | 0         | 1          | 22.4               | 22.3     | 22.2       |
|            |          | 16QAM | 1             | 0         | 1          | 22.3               | 22.4     | 22.0       |
|            |          |       | 1             | 25        | 1          | 22.2               | 21.9     | 22.0       |
|            |          |       | 1             | 49        | 1          | 22.3               | 22.0     | 21.9       |
|            |          |       | 25            | 0         | 2          | 21.3               | 21.2     | 21.3       |
|            |          |       | 25            | 12        | 2          | 21.4               | 21.3     | 21.3       |
|            |          |       | 25            | 25        | 2          | 21.4               | 21.3     | 21.2       |
|            |          |       | 50            | 0         | 2          | 21.3               | 21.2     | 21.2       |

**LTE Band 7 Measured Results (continued)**

| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |          |            |
|------------|----------|-------|---------------|-----------|------------|--------------------|----------|------------|
|            |          |       |               |           |            | 2502.5 MHz         | 2535 MHz | 2567.5 MHz |
| LTE Band 7 | 5        | QPSK  | 1             | 0         | 0          | 23.5               | 23.3     | 23.4       |
|            |          |       | 1             | 12        | 0          | 23.4               | 23.1     | 23.1       |
|            |          |       | 1             | 24        | 0          | 23.3               | 23.1     | 23.1       |
|            |          |       | 12            | 0         | 1          | 22.4               | 22.2     | 22.3       |
|            |          |       | 12            | 7         | 1          | 22.3               | 22.3     | 22.3       |
|            |          |       | 12            | 13        | 1          | 22.3               | 22.2     | 22.2       |
|            |          |       | 25            | 0         | 1          | 22.3               | 22.2     | 22.2       |
|            |          | 16QAM | 1             | 0         | 1          | 22.4               | 21.9     | 22.4       |
|            |          |       | 1             | 12        | 1          | 22.5               | 22.0     | 22.0       |
|            |          |       | 1             | 24        | 1          | 22.4               | 21.9     | 22.3       |
|            |          |       | 12            | 0         | 2          | 21.3               | 21.1     | 21.3       |
|            |          |       | 12            | 7         | 2          | 21.2               | 21.2     | 21.3       |
|            |          |       | 12            | 13        | 2          | 21.3               | 21.1     | 21.2       |
|            |          |       | 25            | 0         | 2          | 21.2               | 21.3     | 21.2       |

**LTE Band 12 Measured Results**

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |           |           |
|-------------|----------|-------|---------------|-----------|------------|--------------------|-----------|-----------|
|             |          |       |               |           |            | 707.5 MHz          |           |           |
| LTE Band 12 | 10       | QPSK  | 1             | 0         | 0          |                    | 24.0      |           |
|             |          |       | 1             | 25        | 0          |                    | 24.2      |           |
|             |          |       | 1             | 49        | 0          |                    | 23.8      |           |
|             |          |       | 25            | 0         | 1          |                    | 22.8      |           |
|             |          |       | 25            | 12        | 1          |                    | 22.8      |           |
|             |          |       | 25            | 25        | 1          |                    | 22.8      |           |
|             |          | 16QAM | 50            | 0         | 1          |                    | 22.8      |           |
|             |          |       | 1             | 0         | 1          |                    | 22.4      |           |
|             |          |       | 1             | 25        | 1          |                    | 22.5      |           |
|             |          |       | 1             | 49        | 1          |                    | 22.3      |           |
|             |          |       | 25            | 0         | 2          |                    | 21.9      |           |
|             |          |       | 25            | 12        | 2          |                    | 21.9      |           |
|             |          |       | 25            | 25        | 2          |                    | 21.8      |           |
|             |          |       | 50            | 0         | 2          |                    | 21.8      |           |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |           |           |
|             |          |       |               |           |            | 701.5 MHz          | 707.5 MHz | 713.5 MHz |
| LTE Band 12 | 5        | QPSK  | 1             | 0         | 0          | 23.7               | 23.7      | 23.9      |
|             |          |       | 1             | 12        | 0          | 23.9               | 23.8      | 23.6      |
|             |          |       | 1             | 24        | 0          | 23.7               | 23.7      | 23.7      |
|             |          |       | 12            | 0         | 1          | 22.6               | 22.7      | 22.8      |
|             |          |       | 12            | 7         | 1          | 22.7               | 22.8      | 22.8      |
|             |          |       | 12            | 13        | 1          | 22.7               | 22.7      | 22.7      |
|             |          |       | 25            | 0         | 1          | 22.6               | 22.7      | 22.7      |
|             |          | 16QAM | 1             | 0         | 1          | 22.4               | 22.2      | 22.9      |
|             |          |       | 1             | 12        | 1          | 22.7               | 22.5      | 22.3      |
|             |          |       | 1             | 24        | 1          | 22.6               | 22.2      | 22.7      |
|             |          |       | 12            | 0         | 2          | 21.6               | 21.7      | 21.8      |
|             |          |       | 12            | 7         | 2          | 21.7               | 21.8      | 21.7      |
|             |          |       | 12            | 13        | 2          | 21.7               | 21.7      | 21.7      |
|             |          |       | 25            | 0         | 2          | 21.6               | 21.8      | 21.7      |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |           |           |
|             |          |       |               |           |            | 700.5 MHz          | 707.5 MHz | 714.5 MHz |
| LTE Band 12 | 3        | QPSK  | 1             | 0         | 0          | 23.7               | 23.8      | 23.7      |
|             |          |       | 1             | 8         | 0          | 24.0               | 24.1      | 23.8      |
|             |          |       | 1             | 14        | 0          | 23.8               | 23.8      | 23.8      |
|             |          |       | 8             | 0         | 1          | 22.7               | 22.9      | 22.6      |
|             |          |       | 8             | 4         | 1          | 22.8               | 22.9      | 22.7      |
|             |          |       | 8             | 7         | 1          | 22.8               | 22.8      | 22.6      |
|             |          |       | 15            | 0         | 1          | 22.7               | 22.8      | 22.6      |
|             |          | 16QAM | 1             | 0         | 1          | 22.5               | 22.3      | 22.7      |
|             |          |       | 1             | 8         | 1          | 22.8               | 22.4      | 22.2      |
|             |          |       | 1             | 14        | 1          | 22.5               | 22.2      | 22.8      |
|             |          |       | 8             | 0         | 2          | 21.7               | 21.9      | 21.5      |
|             |          |       | 8             | 4         | 2          | 21.7               | 21.9      | 21.6      |
|             |          |       | 8             | 7         | 2          | 21.8               | 21.8      | 21.5      |
|             |          |       | 15            | 0         | 2          | 21.7               | 21.7      | 21.7      |

**Note(s):**

10 MHz 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 12 Measured Results (continued)**

| Band           | BW<br>(MHz) | Mode  | RB<br>Allocation | RB<br>offset | Target<br>MPR | Max. Avg Pwr (dBm) |           |           |
|----------------|-------------|-------|------------------|--------------|---------------|--------------------|-----------|-----------|
|                |             |       |                  |              |               | 699.7 MHz          | 707.5 MHz | 715.3 MHz |
| LTE<br>Band 12 | 1.4         | QPSK  | 1                | 0            | 0             | 24.0               | 23.9      | 23.7      |
|                |             |       | 1                | 3            | 0             | 23.9               | 23.7      | 23.8      |
|                |             |       | 1                | 5            | 0             | 24.0               | 23.9      | 23.7      |
|                |             |       | 3                | 0            | 0             | 23.9               | 23.8      | 23.6      |
|                |             |       | 3                | 1            | 0             | 23.8               | 23.9      | 23.7      |
|                |             |       | 3                | 3            | 0             | 23.7               | 23.8      | 23.5      |
|                |             |       | 6                | 0            | 1             | 22.8               | 22.7      | 22.5      |
|                |             | 16QAM | 1                | 0            | 1             | 22.7               | 22.2      | 22.3      |
|                |             |       | 1                | 3            | 1             | 22.5               | 22.3      | 22.6      |
|                |             |       | 1                | 5            | 1             | 22.5               | 22.2      | 22.4      |
|                |             |       | 3                | 0            | 1             | 22.3               | 22.3      | 22.2      |
|                |             |       | 3                | 1            | 1             | 22.2               | 22.3      | 22.2      |
|                |             |       | 3                | 3            | 1             | 22.2               | 22.3      | 22.3      |
|                |             |       | 6                | 0            | 2             | 21.8               | 21.8      | 21.7      |

**LTE Band 13 Measured Results**

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |
|-------------|----------|-------|---------------|-----------|------------|--------------------|
|             |          |       |               |           |            | 782 MHz            |
| LTE Band 13 | 10       | QPSK  | 1             | 0         | 0          | 24.2               |
|             |          |       | 1             | 25        | 0          | 24.2               |
|             |          |       | 1             | 49        | 0          | 24.0               |
|             |          |       | 25            | 0         | 1          | 22.8               |
|             |          |       | 25            | 12        | 1          | 22.8               |
|             |          |       | 25            | 25        | 1          | 22.9               |
|             |          |       | 50            | 0         | 1          | 22.9               |
|             |          | 16QAM | 1             | 0         | 1          | 22.7               |
|             |          |       | 1             | 25        | 1          | 22.6               |
|             |          |       | 1             | 49        | 1          | 22.6               |
|             |          |       | 25            | 0         | 2          | 21.7               |
|             |          |       | 25            | 12        | 2          | 21.7               |
|             |          |       | 25            | 25        | 2          | 21.7               |
|             |          |       | 50            | 0         | 2          | 21.6               |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |
|             |          |       |               |           |            | 782 MHz            |
| LTE Band 13 | 5        | QPSK  | 1             | 0         | 0          | 24.0               |
|             |          |       | 1             | 12        | 0          | 24.0               |
|             |          |       | 1             | 24        | 0          | 24.0               |
|             |          |       | 12            | 0         | 1          | 22.7               |
|             |          |       | 12            | 7         | 1          | 22.8               |
|             |          |       | 12            | 13        | 1          | 22.8               |
|             |          |       | 25            | 0         | 1          | 22.7               |
|             |          | 16QAM | 1             | 0         | 1          | 22.7               |
|             |          |       | 1             | 12        | 1          | 23.0               |
|             |          |       | 1             | 24        | 1          | 22.9               |
|             |          |       | 12            | 0         | 2          | 21.5               |
|             |          |       | 12            | 7         | 2          | 21.6               |
|             |          |       | 12            | 13        | 2          | 21.6               |
|             |          |       | 25            | 0         | 2          | 21.4               |

**Note(s):**

10/5 MHz Bandwidths 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 17 Measured Results**

SAR for LTE Band 17 is covered by LTE Band 12 due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

**LTE Band 25 Measured Results**

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |            |            |
|-------------|----------|-------|---------------|-----------|------------|--------------------|------------|------------|
|             |          |       |               |           |            | 1860 MHz           | 1882.5 MHz | 1905 MHz   |
| LTE Band 25 | 20       | QPSK  | 1             | 0         | 0          | 23.4               | 23.4       | 23.4       |
|             |          |       | 1             | 49        | 0          | 23.2               | 23.4       | 23.4       |
|             |          |       | 1             | 99        | 0          | 23.1               | 23.4       | 23.4       |
|             |          |       | 50            | 0         | 1          | 22.4               | 22.2       | 22.3       |
|             |          |       | 50            | 24        | 1          | 22.3               | 22.2       | 22.4       |
|             |          |       | 50            | 50        | 1          | 22.3               | 22.3       | 22.4       |
|             |          |       | 100           | 0         | 1          | 22.3               | 22.3       | 22.4       |
|             |          | 16QAM | 1             | 0         | 1          | 22.4               | 22.4       | 22.4       |
|             |          |       | 1             | 49        | 1          | 22.4               | 22.2       | 22.4       |
|             |          |       | 1             | 99        | 1          | 22.1               | 22.2       | 22.4       |
|             |          |       | 50            | 0         | 2          | 21.2               | 21.0       | 21.2       |
|             |          |       | 50            | 24        | 2          | 21.2               | 21.0       | 21.3       |
|             |          |       | 50            | 50        | 2          | 21.2               | 21.2       | 21.2       |
|             |          |       | 100           | 0         | 2          | 21.2               | 21.2       | 21.3       |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |            |            |
|             |          |       |               |           |            | 1857.5 MHz         | 1882.5 MHz | 1907.5 MHz |
| LTE Band 25 | 15       | QPSK  | 1             | 0         | 0          | 23.4               | 23.4       | 23.4       |
|             |          |       | 1             | 37        | 0          | 23.2               | 23.4       | 23.4       |
|             |          |       | 1             | 74        | 0          | 23.2               | 23.3       | 23.3       |
|             |          |       | 36            | 0         | 1          | 22.1               | 22.1       | 22.3       |
|             |          |       | 36            | 20        | 1          | 22.1               | 22.3       | 22.3       |
|             |          |       | 36            | 39        | 1          | 22.2               | 22.2       | 22.2       |
|             |          |       | 75            | 0         | 1          | 22.2               | 22.2       | 22.4       |
|             |          | 16QAM | 1             | 0         | 1          | 22.4               | 22.4       | 22.4       |
|             |          |       | 1             | 37        | 1          | 22.1               | 22.4       | 22.3       |
|             |          |       | 1             | 74        | 1          | 22.1               | 22.3       | 22.3       |
|             |          |       | 36            | 0         | 2          | 21.0               | 21.0       | 21.2       |
|             |          |       | 36            | 20        | 2          | 21.0               | 21.1       | 21.2       |
|             |          |       | 36            | 39        | 2          | 21.0               | 21.1       | 21.1       |
|             |          |       | 75            | 0         | 2          | 21.0               | 21.0       | 21.2       |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |            |            |
|             |          |       |               |           |            | 1855 MHz           | 1882.5 MHz | 1910 MHz   |
| LTE Band 25 | 10       | QPSK  | 1             | 0         | 0          | 23.3               | 23.3       | 23.4       |
|             |          |       | 1             | 25        | 0          | 23.4               | 23.1       | 23.3       |
|             |          |       | 1             | 49        | 0          | 23.3               | 23.1       | 23.1       |
|             |          |       | 25            | 0         | 1          | 22.0               | 22.0       | 21.9       |
|             |          |       | 25            | 12        | 1          | 22.2               | 22.2       | 21.9       |
|             |          |       | 25            | 25        | 1          | 22.0               | 22.0       | 21.9       |
|             |          |       | 50            | 0         | 1          | 22.1               | 22.0       | 22.0       |
|             |          | 16QAM | 1             | 0         | 1          | 22.4               | 22.3       | 22.3       |
|             |          |       | 1             | 25        | 1          | 22.2               | 22.2       | 22.2       |
|             |          |       | 1             | 49        | 1          | 22.3               | 22.2       | 22.3       |
|             |          |       | 25            | 0         | 2          | 20.8               | 20.9       | 20.7       |
|             |          |       | 25            | 12        | 2          | 21.0               | 20.9       | 20.8       |
|             |          |       | 25            | 25        | 2          | 20.8               | 20.8       | 20.9       |
|             |          |       | 50            | 0         | 2          | 20.9               | 20.8       | 20.9       |

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

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |            |            |
|-------------|----------|-------|---------------|-----------|------------|--------------------|------------|------------|
|             |          |       |               |           |            | 1852.5 MHz         | 1882.5 MHz | 1912.5 MHz |
| LTE Band 25 | 5        | QPSK  | 1             | 0         | 0          | 23.4               | 23.4       | 23.2       |
|             |          |       | 1             | 12        | 0          | 23.2               | 23.1       | 23.2       |
|             |          |       | 1             | 24        | 0          | 23.4               | 23.3       | 23.0       |
|             |          |       | 12            | 0         | 1          | 22.0               | 22.0       | 22.0       |
|             |          |       | 12            | 7         | 1          | 22.0               | 22.0       | 22.0       |
|             |          |       | 12            | 13        | 1          | 22.0               | 22.1       | 22.0       |
|             |          |       | 25            | 0         | 1          | 22.0               | 22.0       | 22.1       |
|             |          | 16QAM | 1             | 0         | 1          | 22.4               | 22.1       | 21.9       |
|             |          |       | 1             | 12        | 1          | 22.4               | 22.1       | 22.0       |
|             |          |       | 1             | 24        | 1          | 22.4               | 22.0       | 21.9       |
|             |          |       | 12            | 0         | 2          | 21.0               | 20.9       | 20.8       |
|             |          |       | 12            | 7         | 2          | 21.0               | 21.0       | 20.8       |
|             |          |       | 12            | 13        | 2          | 21.0               | 21.0       | 20.9       |
|             |          |       | 25            | 0         | 2          | 20.9               | 20.9       | 20.9       |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |            |            |
|             |          |       |               |           |            | 1851.5 MHz         | 1882.5 MHz | 1913.5 MHz |
| LTE Band 25 | 3        | QPSK  | 1             | 0         | 0          | 23.3               | 23.2       | 23.2       |
|             |          |       | 1             | 8         | 0          | 23.3               | 23.3       | 23.4       |
|             |          |       | 1             | 14        | 0          | 23.2               | 23.2       | 23.1       |
|             |          |       | 8             | 0         | 1          | 22.0               | 22.1       | 22.0       |
|             |          |       | 8             | 4         | 1          | 22.2               | 22.0       | 22.0       |
|             |          |       | 8             | 7         | 1          | 22.1               | 22.0       | 21.9       |
|             |          |       | 15            | 0         | 1          | 22.1               | 22.0       | 22.0       |
|             |          | 16QAM | 1             | 0         | 1          | 22.3               | 22.2       | 22.3       |
|             |          |       | 1             | 8         | 1          | 22.4               | 22.2       | 22.4       |
|             |          |       | 1             | 14        | 1          | 22.4               | 22.4       | 22.2       |
|             |          |       | 8             | 0         | 2          | 20.9               | 20.9       | 20.7       |
|             |          |       | 8             | 4         | 2          | 21.0               | 20.9       | 20.7       |
|             |          |       | 8             | 7         | 2          | 20.9               | 20.8       | 20.7       |
|             |          |       | 15            | 0         | 2          | 20.9               | 20.9       | 20.7       |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |            |            |
|             |          |       |               |           |            | 1850.7 MHz         | 1882.5 MHz | 1914.3 MHz |
| LTE Band 25 | 1.4      | QPSK  | 1             | 0         | 0          | 23.4               | 23.3       | 23.0       |
|             |          |       | 1             | 3         | 0          | 23.4               | 23.3       | 23.2       |
|             |          |       | 1             | 5         | 0          | 23.4               | 23.2       | 23.0       |
|             |          |       | 3             | 0         | 0          | 23.2               | 23.2       | 22.9       |
|             |          |       | 3             | 1         | 0          | 23.2               | 23.3       | 23.0       |
|             |          |       | 3             | 3         | 0          | 23.2               | 23.2       | 23.0       |
|             |          |       | 6             | 0         | 1          | 22.0               | 22.0       | 22.0       |
|             |          | 16QAM | 1             | 0         | 1          | 22.3               | 22.3       | 21.9       |
|             |          |       | 1             | 3         | 1          | 22.2               | 22.4       | 22.1       |
|             |          |       | 1             | 5         | 1          | 22.3               | 22.3       | 21.8       |
|             |          |       | 3             | 0         | 1          | 21.8               | 22.0       | 21.8       |
|             |          |       | 3             | 1         | 1          | 21.9               | 22.0       | 21.8       |
|             |          |       | 3             | 3         | 1          | 21.9               | 21.9       | 21.9       |
|             |          |       | 6             | 0         | 2          | 20.8               | 20.8       | 20.8       |

**LTE Band 26 Measured Results**

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |           |           |
|-------------|----------|-------|---------------|-----------|------------|--------------------|-----------|-----------|
|             |          |       |               |           |            | 831.5 MHz          |           |           |
| LTE Band 26 | 15       | QPSK  | 1             | 0         | 0          |                    | 23.8      |           |
|             |          |       | 1             | 37        | 0          |                    | 24.1      |           |
|             |          |       | 1             | 74        | 0          |                    | 23.6      |           |
|             |          |       | 36            | 0         | 1          |                    | 22.8      |           |
|             |          |       | 36            | 20        | 1          |                    | 22.8      |           |
|             |          |       | 36            | 39        | 1          |                    | 22.8      |           |
|             |          | 16QAM | 75            | 0         | 1          |                    | 22.7      |           |
|             |          |       | 1             | 0         | 1          |                    | 22.6      |           |
|             |          |       | 1             | 37        | 1          |                    | 22.6      |           |
|             |          |       | 1             | 74        | 1          |                    | 22.4      |           |
|             |          |       | 36            | 0         | 2          |                    | 21.7      |           |
|             |          |       | 36            | 20        | 2          |                    | 21.7      |           |
|             |          |       | 36            | 39        | 2          |                    | 21.7      |           |
|             |          |       | 75            | 0         | 2          |                    | 21.7      |           |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |           |           |
|             |          |       |               |           |            | 819 MHz            | 831.5 MHz | 844 MHz   |
| LTE Band 26 | 10       | QPSK  | 1             | 0         | 0          | 23.8               | 23.8      | 23.6      |
|             |          |       | 1             | 25        | 0          | 23.9               | 23.6      | 23.7      |
|             |          |       | 1             | 49        | 0          | 23.7               | 23.6      | 23.4      |
|             |          |       | 25            | 0         | 1          | 22.6               | 22.6      | 22.3      |
|             |          |       | 25            | 12        | 1          | 22.6               | 22.6      | 22.3      |
|             |          |       | 25            | 25        | 1          | 22.5               | 22.5      | 22.2      |
|             |          |       | 50            | 0         | 1          | 22.5               | 22.6      | 22.4      |
|             |          | 16QAM | 1             | 0         | 1          | 22.7               | 22.8      | 22.3      |
|             |          |       | 1             | 25        | 1          | 22.6               | 22.2      | 22.7      |
|             |          |       | 1             | 49        | 1          | 22.6               | 22.4      | 22.7      |
|             |          |       | 25            | 0         | 2          | 21.5               | 21.5      | 21.4      |
|             |          |       | 25            | 12        | 2          | 21.6               | 21.5      | 21.4      |
|             |          |       | 25            | 25        | 2          | 21.4               | 21.4      | 21.4      |
|             |          |       | 50            | 0         | 2          | 21.4               | 21.4      | 21.4      |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |           |           |
|             |          |       |               |           |            | 816.5 MHz          | 831.5 MHz | 846.5 MHz |
| LTE Band 26 | 5        | QPSK  | 1             | 0         | 0          | 23.8               | 23.7      | 23.8      |
|             |          |       | 1             | 12        | 0          | 23.7               | 23.7      | 23.7      |
|             |          |       | 1             | 24        | 0          | 23.6               | 23.5      | 23.7      |
|             |          |       | 12            | 0         | 1          | 22.7               | 22.5      | 22.8      |
|             |          |       | 12            | 7         | 1          | 22.7               | 22.5      | 22.8      |
|             |          |       | 12            | 13        | 1          | 22.5               | 22.6      | 22.7      |
|             |          |       | 25            | 0         | 1          | 22.5               | 22.6      | 22.7      |
|             |          | 16QAM | 1             | 0         | 1          | 22.7               | 22.3      | 22.8      |
|             |          |       | 1             | 12        | 1          | 23.2               | 22.4      | 23.1      |
|             |          |       | 1             | 24        | 1          | 22.6               | 22.3      | 22.7      |
|             |          |       | 12            | 0         | 2          | 21.6               | 21.4      | 21.7      |
|             |          |       | 12            | 7         | 2          | 21.6               | 21.4      | 21.7      |
|             |          |       | 12            | 13        | 2          | 21.3               | 21.4      | 21.7      |
|             |          |       | 25            | 0         | 2          | 21.4               | 21.5      | 21.6      |

**Note(s):**

15 MHz 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 26 Measured Results (continued)**

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |           |           |
|-------------|----------|-------|---------------|-----------|------------|--------------------|-----------|-----------|
|             |          |       |               |           |            | 815.5 MHz          | 831.5 MHz | 847.5 MHz |
| LTE Band 26 | 3        | QPSK  | 1             | 0         | 0          | 23.9               | 23.8      | 23.4      |
|             |          |       | 1             | 8         | 0          | 23.9               | 24.0      | 23.7      |
|             |          |       | 1             | 14        | 0          | 23.6               | 23.7      | 23.3      |
|             |          |       | 8             | 0         | 1          | 22.8               | 22.8      | 22.4      |
|             |          |       | 8             | 4         | 1          | 22.9               | 22.8      | 22.4      |
|             |          |       | 8             | 7         | 1          | 22.7               | 22.8      | 22.4      |
|             |          |       | 15            | 0         | 1          | 22.8               | 22.7      | 22.4      |
|             |          | 16QAM | 1             | 0         | 1          | 23.0               | 22.7      | 22.8      |
|             |          |       | 1             | 8         | 1          | 23.0               | 22.7      | 22.3      |
|             |          |       | 1             | 14        | 1          | 22.8               | 22.5      | 22.6      |
|             |          |       | 8             | 0         | 2          | 21.8               | 21.8      | 21.3      |
|             |          |       | 8             | 4         | 2          | 21.8               | 21.8      | 21.3      |
|             |          |       | 8             | 7         | 2          | 21.8               | 21.8      | 21.3      |
|             |          |       | 15            | 0         | 2          | 21.9               | 21.7      | 21.4      |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |           |           |
|             |          |       |               |           |            | 814.7 MHz          | 831.5 MHz | 848.3 MHz |
| LTE Band 26 | 1.4      | QPSK  | 1             | 0         | 0          | 24.0               | 23.7      | 23.6      |
|             |          |       | 1             | 3         | 0          | 24.0               | 23.7      | 23.5      |
|             |          |       | 1             | 5         | 0          | 23.9               | 23.7      | 23.5      |
|             |          |       | 3             | 0         | 0          | 23.8               | 23.7      | 23.3      |
|             |          |       | 3             | 1         | 0          | 23.8               | 23.7      | 23.3      |
|             |          |       | 3             | 3         | 0          | 23.7               | 23.7      | 23.3      |
|             |          |       | 6             | 0         | 1          | 22.8               | 22.7      | 22.4      |
|             |          | 16QAM | 1             | 0         | 1          | 23.0               | 22.4      | 22.7      |
|             |          |       | 1             | 3         | 1          | 22.9               | 22.7      | 22.5      |
|             |          |       | 1             | 5         | 1          | 23.0               | 22.4      | 22.5      |
|             |          |       | 3             | 0         | 1          | 22.6               | 22.5      | 22.3      |
|             |          |       | 3             | 1         | 1          | 22.5               | 22.6      | 22.2      |
|             |          |       | 3             | 3         | 1          | 22.4               | 22.5      | 22.2      |
|             |          |       | 6             | 0         | 2          | 21.9               | 21.8      | 21.4      |

**LTE Band 41 Measured Results**

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |            |          |            |            |
|-------------|----------|-------|---------------|-----------|------------|--------------------|------------|----------|------------|------------|
|             |          |       |               |           |            | 2506 MHz           | 2549.5 MHz | 2593 MHz | 2636.5 MHz | 2680 MHz   |
| LTE Band 41 | 20       | QPSK  | 1             | 0         | 0          | 22.8               | 23.2       | 23.2     | 23.1       | 23.1       |
|             |          |       | 1             | 49        | 0          | 22.9               | 23.1       | 23.0     | 22.9       | 23.0       |
|             |          |       | 1             | 99        | 0          | 22.8               | 22.9       | 23.1     | 23.1       | 22.8       |
|             |          |       | 50            | 0         | 1          | 21.8               | 21.8       | 21.7     | 21.6       | 21.7       |
|             |          |       | 50            | 24        | 1          | 21.8               | 21.8       | 21.7     | 21.6       | 21.7       |
|             |          |       | 50            | 50        | 1          | 21.7               | 21.7       | 21.7     | 21.6       | 21.7       |
|             |          |       | 100           | 0         | 1          | 21.8               | 21.8       | 21.6     | 21.6       | 21.7       |
|             |          | 16QAM | 1             | 0         | 1          | 22.1               | 22.1       | 21.7     | 21.6       | 21.7       |
|             |          |       | 1             | 49        | 1          | 22.0               | 21.9       | 21.6     | 21.6       | 21.6       |
|             |          |       | 1             | 99        | 1          | 21.8               | 22.0       | 21.5     | 21.3       | 21.4       |
|             |          |       | 50            | 0         | 2          | 20.7               | 20.8       | 20.7     | 20.7       | 20.8       |
|             |          |       | 50            | 24        | 2          | 20.7               | 21.0       | 20.7     | 20.6       | 20.7       |
|             |          |       | 50            | 50        | 2          | 20.7               | 20.7       | 20.7     | 20.6       | 20.6       |
|             |          |       | 100           | 0         | 2          | 20.8               | 20.9       | 20.8     | 20.7       | 20.7       |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |            |          |            |            |
|             |          |       |               |           |            | 2503.5 MHz         | 2548.3 MHz | 2593 MHz | 2637.8 MHz | 2682.5 MHz |
| LTE Band 41 | 15       | QPSK  | 1             | 0         | 0          | 22.9               | 22.9       | 22.6     | 23.0       | 23.0       |
|             |          |       | 1             | 37        | 0          | 22.8               | 22.9       | 22.7     | 22.9       | 22.8       |
|             |          |       | 1             | 74        | 0          | 22.9               | 22.8       | 22.6     | 22.8       | 22.7       |
|             |          |       | 36            | 0         | 1          | 21.7               | 21.7       | 21.7     | 21.6       | 21.7       |
|             |          |       | 36            | 20        | 1          | 21.8               | 21.9       | 21.7     | 21.6       | 21.7       |
|             |          |       | 36            | 39        | 1          | 21.7               | 21.7       | 21.6     | 21.5       | 21.5       |
|             |          |       | 75            | 0         | 1          | 21.7               | 21.7       | 21.6     | 21.5       | 21.6       |
|             |          | 16QAM | 1             | 0         | 1          | 22.0               | 21.7       | 21.6     | 22.2       | 21.6       |
|             |          |       | 1             | 37        | 1          | 21.8               | 21.8       | 21.4     | 21.9       | 21.5       |
|             |          |       | 1             | 74        | 1          | 21.7               | 21.6       | 21.4     | 21.7       | 21.3       |
|             |          |       | 36            | 0         | 2          | 20.7               | 20.7       | 20.8     | 20.6       | 20.7       |
|             |          |       | 36            | 20        | 2          | 20.8               | 20.8       | 20.7     | 20.6       | 20.6       |
|             |          |       | 36            | 39        | 2          | 20.7               | 20.7       | 20.6     | 20.6       | 20.5       |
|             |          |       | 75            | 0         | 2          | 20.6               | 20.8       | 20.6     | 20.5       | 20.6       |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |            |          |            |            |
|             |          |       |               |           |            | 2501 MHz           | 2547 MHz   | 2593 MHz | 2639 MHz   | 2685 MHz   |
| LTE Band 41 | 10       | QPSK  | 1             | 0         | 0          | 23.1               | 23.1       | 22.8     | 22.8       | 22.8       |
|             |          |       | 1             | 25        | 0          | 22.9               | 22.9       | 22.7     | 22.6       | 22.6       |
|             |          |       | 1             | 49        | 0          | 23.1               | 23.1       | 22.6     | 22.6       | 22.6       |
|             |          |       | 25            | 0         | 1          | 21.7               | 21.6       | 21.4     | 21.4       | 21.4       |
|             |          |       | 25            | 12        | 1          | 21.7               | 21.7       | 21.5     | 21.4       | 21.5       |
|             |          |       | 25            | 25        | 1          | 21.7               | 21.7       | 21.6     | 21.4       | 21.3       |
|             |          |       | 50            | 0         | 1          | 21.7               | 21.8       | 21.5     | 21.3       | 21.4       |
|             |          | 16QAM | 1             | 0         | 1          | 21.5               | 21.8       | 21.6     | 21.3       | 21.6       |
|             |          |       | 1             | 25        | 1          | 21.4               | 21.8       | 21.8     | 21.2       | 21.8       |
|             |          |       | 1             | 49        | 1          | 21.7               | 21.8       | 21.7     | 21.2       | 21.6       |
|             |          |       | 25            | 0         | 2          | 20.5               | 20.8       | 20.5     | 20.4       | 20.5       |
|             |          |       | 25            | 12        | 2          | 20.7               | 20.8       | 20.7     | 20.6       | 20.5       |
|             |          |       | 25            | 25        | 2          | 20.8               | 20.9       | 20.6     | 20.4       | 20.3       |
|             |          |       | 50            | 0         | 2          | 20.7               | 20.8       | 20.5     | 20.5       | 20.4       |

**LTE Band 41 Measured Results (continued)**

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | Target MPR | Max. Avg Pwr (dBm) |            |          |            |            |
|-------------|----------|-------|---------------|-----------|------------|--------------------|------------|----------|------------|------------|
|             |          |       |               |           |            | 2498.5 MHz         | 2545.8 MHz | 2593 MHz | 2640.3 MHz | 2687.5 MHz |
| LTE Band 41 | 5        | QPSK  | 1             | 0         | 0          | 23.0               | 22.9       | 22.6     | 22.8       | 23.2       |
|             |          |       | 1             | 12        | 0          | 22.6               | 22.7       | 22.7     | 22.6       | 22.7       |
|             |          |       | 1             | 24        | 0          | 23.0               | 23.2       | 22.9     | 22.8       | 22.9       |
|             |          |       | 12            | 0         | 1          | 21.5               | 21.7       | 21.5     | 21.5       | 21.5       |
|             |          |       | 12            | 7         | 1          | 21.6               | 21.6       | 21.5     | 21.5       | 21.4       |
|             |          |       | 12            | 13        | 1          | 21.6               | 21.7       | 21.5     | 21.4       | 21.4       |
|             |          | 16QAM | 25            | 0         | 1          | 21.5               | 21.6       | 21.5     | 21.3       | 21.3       |
|             |          |       | 1             | 0         | 1          | 21.6               | 22.0       | 21.6     | 21.4       | 21.7       |
|             |          |       | 1             | 12        | 1          | 21.4               | 21.7       | 21.7     | 21.5       | 21.5       |
|             |          |       | 1             | 24        | 1          | 21.6               | 22.0       | 21.6     | 21.5       | 21.7       |
|             |          |       | 12            | 0         | 2          | 20.7               | 20.7       | 20.5     | 20.5       | 20.5       |
|             |          |       | 12            | 7         | 2          | 20.6               | 20.7       | 20.4     | 20.5       | 20.5       |
|             |          |       | 12            | 13        | 2          | 20.5               | 20.7       | 20.5     | 20.4       | 20.4       |
|             |          |       | 25            | 0         | 2          | 20.7               | 20.7       | 20.4     | 20.5       | 20.3       |

**LTE Release 10 Carrier Aggregation**

The following power measurements were performed with a single carrier uplink; CA for this particular project only supports one (1) uplink and two (2) downlinks.

| LTE CA combinations |   |     | PCC (UL)        |                 |         |           | SCC (DL)        |                 |         | LTE Rel 10 Tx. Power [dBm] |
|---------------------|---|-----|-----------------|-----------------|---------|-----------|-----------------|-----------------|---------|----------------------------|
| PCC                 | + | SCC | Bandwidth (MHz) | Frequency (MHz) | Channel | RB/Offset | Bandwidth (MHz) | Frequency (MHz) | Channel |                            |
| 2                   | + | 13  | 20              | 1880            | 18900   | 1/0       | 10              | 751             | 5230    | 23.40                      |
| 4                   | + | 13  | 20              | 1732.5          | 20175   | 1/0       | 10              | 751             | 5230    | 23.40                      |
| 13                  | + | 2   | 10              | 782             | 23230   | 1/0       | 20              | 1960            | 900     | 24.15                      |
| 13                  | + | 4   | 10              | 782             | 23230   | 1/0       | 20              | 2132.5          | 2175    | 24.11                      |
| 2                   | + | 4   | 20              | 1880            | 18900   | 1/0       | 20              | 2132.5          | 2175    | 23.40                      |
| 4                   | + | 2   | 20              | 1732.5          | 20175   | 1/0       | 20              | 1960            | 900     | 23.40                      |
| 2                   | + | 17  | 10              | 1880            | 18900   | 1/0       | 10              | 740             | 5790    | 23.35                      |
| 17                  | + | 2   | 10              | 710             | 23790   | 1/25      | 20              | 1960            | 900     | 24.13                      |
| 4                   | + | 17  | 10              | 1732.5          | 20175   | 1/0       | 10              | 740             | 5790    | 23.35                      |
| 17                  | + | 4   | 10              | 710             | 23790   | 1/25      | 20              | 2132.5          | 2175    | 24.18                      |
| 2                   | + | 29  | 20              | 1880            | 18900   | 1/0       | 10              | 722.5           | 9715    | 23.34                      |
| 4                   | + | 29  | 20              | 1732.5          | 20175   | 1/0       | 10              | 722.5           | 9715    | 23.40                      |
| 2                   | + | 5   | 20              | 1880            | 18900   | 1/0       | 10              | 881.5           | 2525    | 23.36                      |
| 5                   | + | 2   | 10              | 836.5           | 20525   | 1/0       | 20              | 1960            | 900     | 24.19                      |
| 4                   | + | 5   | 20              | 1732.5          | 20175   | 1/0       | 10              | 881.5           | 2525    | 23.40                      |
| 5                   | + | 4   | 10              | 836.5           | 20525   | 1/0       | 20              | 2132.5          | 2175    | 24.20                      |
| 2                   | + | 12  | 20              | 1880            | 18900   | 1/0       | 10              | 737.5           | 5095    | 23.35                      |
| 12                  | + | 2   | 10              | 707.5           | 23095   | 1/25      | 20              | 1960            | 900     | 24.19                      |
| 4                   | + | 12  | 20              | 1732.5          | 20175   | 1/0       | 10              | 737.5           | 5095    | 23.38                      |
| 12                  | + | 4   | 10              | 707.5           | 23095   | 1/25      | 20              | 2132.5          | 2175    | 24.20                      |
| 4                   | + | 7   | 10              | 1732.5          | 20175   | 1/0       | 20              | 2655            | 3100    | 23.40                      |
| 7                   | + | 4   | 20              | 2535            | 21100   | 1/0       | 20              | 2132.5          | 2175    | 23.62                      |
| 2                   | + | 2   | 20              | 1880            | 18900   | 1/0       | 20              | 1960            | 900     | 23.40                      |
| 4                   | + | 4   | 20              | 1732.5          | 20175   | 1/0       | 20              | 2132.5          | 2175    | 23.40                      |
| 41                  | + | 41  | 20              | 2549.5          | 40185   | 1/0       | 20MHz           | 2593            | 40620   | 23.14                      |

**Note:**

SAR is excluded for Carrier Aggregation when measured power does not exceed LTE Release 8 by more than a  $\frac{1}{4}$  dB.

## 9.5. Wi-Fi 2.4GHz (DTS Band)

### Measured Results

| Antenna                 | Band (GHz) | Mode             | Data Rate | Ch # | Freq. (MHz) | Avg Pwr (dBm) | Max Output Power (dBm) | SAR Test (Yes/No) | Note(s) |
|-------------------------|------------|------------------|-----------|------|-------------|---------------|------------------------|-------------------|---------|
| SISO Core 0 (Main)      | 2.4        | 802.11b          | 1 Mbps    | 1    | 2412        | 18.0          | 18                     | Yes               |         |
|                         |            |                  |           | 6    | 2437        | 17.5          |                        |                   |         |
|                         |            |                  |           | 11   | 2462        | 17.5          |                        |                   |         |
|                         |            | 802.11g          | 6 Mbps    | 1    | 2412        | Not Required  | 15.5                   | No                | 1       |
|                         |            |                  |           | 6    | 2437        |               | 16.5                   |                   |         |
|                         |            |                  |           | 11   | 2462        |               | 15.5                   |                   |         |
|                         |            | 802.11n (HT20)   | 6.5 Mbps  | 1    | 2412        |               | 15.5                   | No                | 1       |
|                         |            |                  |           | 6    | 2437        |               | 16.5                   |                   |         |
|                         |            |                  |           | 11   | 2462        |               | 15.5                   |                   |         |
|                         |            | 802.11ac (VHT20) | 6.5 Mbps  | 1    | 2412        |               | 15.5                   | No                | 1       |
|                         |            |                  |           | 6    | 2437        |               | 16.5                   |                   |         |
|                         |            |                  |           | 11   | 2462        |               | 15.5                   |                   |         |
| SISO Core 1 (Diversity) | 2.4        | 802.11b          | 1 Mbps    | 1    | 2412        | 17.9          | 18                     | Yes               |         |
|                         |            |                  |           | 6    | 2437        | 17.5          |                        |                   |         |
|                         |            |                  |           | 11   | 2462        | 17.7          |                        |                   |         |
|                         |            | 802.11g          | 6 Mbps    | 1    | 2412        | Not Required  | 15.5                   | No                | 1       |
|                         |            |                  |           | 6    | 2437        |               | 16.5                   |                   |         |
|                         |            |                  |           | 11   | 2462        |               | 15.5                   |                   |         |
|                         |            | 802.11n (HT20)   | 6.5 Mbps  | 1    | 2412        |               | 15.5                   | No                | 1       |
|                         |            |                  |           | 6    | 2437        |               | 16.5                   |                   |         |
|                         |            |                  |           | 11   | 2462        |               | 15.5                   |                   |         |
|                         |            | 802.11n (HT20)   | 6.5 Mbps  | 1    | 2412        |               | 15.5                   | No                | 1       |
|                         |            |                  |           | 6    | 2437        |               | 16.5                   |                   |         |
|                         |            |                  |           | 11   | 2462        |               | 15.5                   |                   |         |

### Note(s):

- Output Power and SAR is not required for 802.11g/n HT20/ac VHT20 channels 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.

## 9.6. Wi-Fi 5GHz (U-NII Bands)

### MIMO Measured Results

| Band (GHz)  | Mode                    | Data Rate | Ch # | Freq. (MHz) | Avg Pwr (dBm) |              | Max Output Power (dBm) | SAR Test (Yes/No) | Note(s) |
|-------------|-------------------------|-----------|------|-------------|---------------|--------------|------------------------|-------------------|---------|
|             |                         |           |      |             | Core 0        | Core 1       |                        |                   |         |
| 5.3 UNII-2A | 802.11a                 | 6 Mbps    | 52   | 5260        | 14.3          | 14.5         | 15.0                   | Yes               | 2       |
|             |                         |           | 56   | 5280        | 14.3          | 14.8         |                        |                   |         |
|             |                         |           | 60   | 5300        | 14.3          | 14.6         |                        |                   |         |
|             |                         |           | 64   | 5320        | 14.2          | 14.6         |                        |                   |         |
|             | 802.11n/ac (HT20/VHT20) | 6.5 Mbps  | 52   | 5260        | Not Required  | Not Required | 14.5                   | No                | 1       |
|             |                         |           | 56   | 5280        |               |              |                        |                   |         |
|             |                         |           | 60   | 5300        |               |              |                        |                   |         |
|             |                         |           | 64   | 5320        |               |              |                        |                   |         |
|             | 802.11n/ac (HT40/VHT40) | 13.5 Mbps | 54   | 5270        |               |              | 12.5                   | No                | 1       |
|             |                         |           | 62   | 5310        |               |              |                        |                   |         |
|             | 802.11ac (VHT80)        | 29.3 Mbps | 58   | 5290        |               |              | 11.5                   | No                | 1       |
| 5.5 UNII-2C | 802.11a                 | 6 Mbps    | 100  | 5500        | 14.7          | 15.0         | 15.0                   | Yes               |         |
|             |                         |           | 104  | 5520        | 14.6          | 15.0         |                        |                   |         |
|             |                         |           | 108  | 5540        | 14.3          | 14.6         |                        |                   |         |
|             |                         |           | 112  | 5560        | 14.3          | 14.6         |                        |                   |         |
|             |                         |           | 116  | 5580        | 14.4          | 14.6         |                        |                   |         |
|             | 802.11n/ac (HT20/VHT20) | 6.5 Mbps  | 100  | 5500        | Not Required  | Not Required | 14.5                   | No                | 1       |
|             |                         |           | 116  | 5580        |               |              |                        |                   |         |
|             | 802.11n/ac (HT40/VHT40) | 13.5 Mbps | 102  | 5510        |               |              | 12.5                   | No                | 1       |
|             |                         |           | 110  | 5550        |               |              |                        |                   |         |
|             | 802.11ac (VHT80)        | 29.3 Mbps | 106  | 5530        |               |              | 11.5                   | No                | 1       |
| 5.8 UNII-3  | 802.11a                 | 6 Mbps    | 132  | 5660        | 14.5          | 14.9         | 15.0                   | Yes               |         |
|             |                         |           | 136  | 5680        | 14.6          | 14.9         |                        |                   |         |
|             |                         |           | 140  | 5700        | 14.5          | 14.9         |                        |                   |         |
|             |                         |           | 144  | 5720        | 14.4          | 14.6         |                        |                   |         |
|             |                         |           | 149  | 5745        | 14.5          | 14.6         |                        |                   |         |
|             |                         |           | 153  | 5765        | 14.5          | 14.5         |                        |                   |         |
|             |                         |           | 157  | 5785        | 14.5          | 14.9         |                        |                   |         |
|             |                         |           | 161  | 5805        | 14.4          | 14.9         |                        |                   |         |
|             |                         |           | 165  | 5825        | 14.4          | 14.9         |                        |                   |         |
|             | 802.11n/ac (HT20/VHT20) | 6.5 Mbps  | 140  | 5700        | Not Required  | Not Required | 14.5                   | No                | 1       |
|             |                         |           | 144  | 5720        |               |              |                        |                   |         |
|             |                         |           | 149  | 5745        |               |              |                        |                   |         |
|             |                         |           | 157  | 5785        |               |              |                        |                   |         |
|             |                         |           | 161  | 5805        |               |              |                        |                   |         |
|             | 802.11n/ac (HT40/VHT40) | 13.5 Mbps | 134  | 5670        |               |              | 12.5                   | No                | 1       |
|             |                         |           | 142  | 5710        |               |              |                        |                   |         |
|             |                         |           | 151  | 5755        |               |              |                        |                   |         |
|             |                         |           | 159  | 5795        |               |              |                        |                   |         |
|             | 802.11ac (VHT80)        | 29.3 Mbps | 138  | 5690        |               |              | 11.5                   | No                | 1       |
|             |                         |           | 155  | 5775        |               |              |                        |                   |         |

#### Note(s):

- Output Power and SAR measurement is not required for 802.11n HT20/HT40 and 802.11acVHT20/40/80 channels when the specified tune-up tolerances for 802.11n HT20/HT40 and 802.11acVHT20/40/80 are lower than 802.11a by more than ½ dB and the measured SAR is ≤ 1.2 W/Kg.
- When the specified maximum output power is the same for both UNII band I and UNII band 2A, begin SAR measurement in UNII band 2A; and if the highest reported SAR for UNII band 2A is
  - ≤ 1.2 W/kg, SAR is not required for UNII band I
  - > 1.2 W/kg, both bands should be tested independently for SAR.

**9.7. Bluetooth**

| Band (GHz) | Mode                      | Ch # | Freq. (MHz) | Avg Pwr (dBm) | Avg Pwr (mW) |
|------------|---------------------------|------|-------------|---------------|--------------|
| 2.4        | V3.0 + EDR, GFSK          | 0    | 2402        | 6.90          | 4.90         |
|            |                           | 39   | 2441        | 8.80          | 7.59         |
|            |                           | 78   | 2480        | 7.30          | 5.37         |
|            | V3.0 + EDR, $\pi/4$ DQPSK | 0    | 2402        | 3.00          | 2.00         |
|            |                           | 39   | 2441        | 5.30          | 3.39         |
|            |                           | 78   | 2480        | 3.70          | 2.34         |
|            | V3.0 + EDR, 8-DPSK        | 0    | 2402        | 3.10          | 2.04         |
|            |                           | 39   | 2441        | 5.50          | 3.55         |
|            |                           | 78   | 2480        | 3.90          | 2.45         |
|            | V4.0 LE, GFSK             | 0    | 2402        | -1.47         | 0.71         |
|            |                           | 19   | 2440        | 1.24          | 1.33         |
|            |                           | 39   | 2480        | -0.11         | 0.97         |

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

SAR Test Reduction criteria are as follows:

### 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 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 v02:**

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. GSM850**

| RF Exposure Conditions    | Mode         | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|---------------------------|--------------|------------|---------------|-------|-------------|---------------|-------|----------------|--------------|----------|
|                           |              |            |               |       |             | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| Head                      | Voice        | 0          | Left Touch    | 190   | 836.6       | 33.2          | 33.1  | 0.426          | <b>0.440</b> | 1        |
|                           |              |            | Left Tilt     | 190   | 836.6       | 33.2          | 33.1  | 0.232          | 0.240        |          |
|                           |              |            | Right Touch   | 190   | 836.6       | 33.2          | 33.1  | 0.337          | 0.348        |          |
|                           |              |            | Right Tilt    | 190   | 836.6       | 33.2          | 33.1  | 0.223          | 0.230        |          |
| Head VoIP                 | GPRS 4 Slots | 0          | Left Touch    | 190   | 836.6       | 28.2          | 27.6  | 0.536          | <b>0.610</b> | 2        |
|                           |              |            | Left Tilt     | 190   | 836.6       | 28.2          | 27.6  | 0.314          | 0.357        |          |
|                           |              |            | Right Touch   | 190   | 836.6       | 28.2          | 27.6  | 0.444          | 0.505        |          |
|                           |              |            | Right Tilt    | 190   | 836.6       | 28.2          | 27.6  | 0.301          | 0.342        |          |
| Body-worn                 | Voice        | 10         | Rear          | 190   | 836.6       | 33.2          | 33.1  | 0.456          | 0.471        |          |
|                           |              |            | Front         | 190   | 836.6       | 33.2          | 33.1  | 0.516          | <b>0.533</b> | 3        |
| Body-worn(VoIP) & Hotspot | GPRS 4 Slots | 10         | Rear          | 190   | 836.6       | 28.2          | 27.6  | 0.662          | 0.753        |          |
|                           |              |            | Front         | 128   | 824.2       | 28.2          | 27.8  | 0.788          | 0.868        |          |
|                           |              |            |               | 190   | 836.6       | 28.2          | 27.6  | 0.780          | <b>0.887</b> | 4        |
|                           |              |            |               | 251   | 848.8       | 28.2          | 28.1  | 0.632          | 0.651        |          |
| Hotspot                   | GPRS 4 Slots | 10         | Edge 2        | 190   | 836.6       | 28.2          | 27.6  | 0.342          | 0.389        |          |
|                           |              |            | Edge 3        | 190   | 836.6       | 28.2          | 27.6  | 0.539          | 0.613        |          |
|                           |              |            | Edge 4        | 190   | 836.6       | 28.2          | 27.6  | 0.649          | 0.738        |          |

**10.2. GSM1900**

| RF Exposure Conditions    | Mode         | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|---------------------------|--------------|------------|---------------|-------|-------------|---------------|-------|----------------|--------------|----------|
|                           |              |            |               |       |             | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| Head                      | Voice        | 0          | Left Touch    | 661   | 1880.0      | 29.7          | 29.3  | 0.253          | 0.276        |          |
|                           |              |            | Left Tilt     | 661   | 1880.0      | 29.7          | 29.3  | 0.120          | 0.131        |          |
|                           |              |            | Right Touch   | 661   | 1880.0      | 29.7          | 29.3  | 0.456          | <b>0.498</b> | 5        |
|                           |              |            | Right Tilt    | 661   | 1880.0      | 29.7          | 29.3  | 0.165          | 0.180        |          |
| Head VoIP                 | GPRS 4 Slots | 0          | Left Touch    | 661   | 1880.0      | 24.7          | 24.5  | 0.259          | 0.269        |          |
|                           |              |            | Left Tilt     | 661   | 1880.0      | 24.7          | 24.5  | 0.141          | 0.147        |          |
|                           |              |            | Right Touch   | 661   | 1880.0      | 24.7          | 24.5  | 0.498          | <b>0.518</b> | 6        |
|                           |              |            | Right Tilt    | 661   | 1880.0      | 24.7          | 24.5  | 0.176          | 0.183        |          |
| Body-worn                 | Voice        | 10         | Rear          | 661   | 1880.0      | 29.7          | 29.3  | 0.334          | 0.365        |          |
|                           |              |            | Front         | 661   | 1880.0      | 29.7          | 29.3  | 0.421          | <b>0.459</b> | 7        |
| Body-worn(VoIP) & Hotspot | GPRS 4 Slots | 10         | Rear          | 661   | 1880.0      | 24.7          | 24.5  | 0.379          | 0.394        |          |
|                           |              |            | Front         | 661   | 1880.0      | 24.7          | 24.5  | 0.482          | <b>0.501</b> | 8        |
| Hotspot                   | GPRS 4 Slots | 10         | Edge 2        | 661   | 1880.0      | 24.7          | 24.5  | 0.476          | 0.495        |          |
|                           |              |            | Edge 3        | 661   | 1880.0      | 24.7          | 24.5  | 0.284          | 0.295        |          |
|                           |              |            | Edge 4        | 661   | 1880.0      | 24.7          | 24.5  | 0.082          | 0.085        |          |

**10.4. W-CDMA Band II**

| RF Exposure Conditions | Mode       | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|------------------------|------------|------------|---------------|-------|-------------|---------------|-------|----------------|--------------|----------|
|                        |            |            |               |       |             | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| Head                   | Rel 99 RMC | 0          | Left Touch    | 9400  | 1880.0      | 23.9          | 23.8  | 0.607          | 0.621        | 9        |
|                        |            |            | Left Tilt     | 9400  | 1880.0      | 23.9          | 23.8  | 0.249          | 0.255        |          |
|                        |            |            | Right Touch   | 9262  | 1852.4      | 23.9          | 23.8  | 0.995          | <b>1.018</b> |          |
|                        |            |            |               | 9400  | 1880.0      | 23.9          | 23.8  | 0.967          | 0.990        |          |
|                        |            |            |               | 9538  | 1907.6      | 23.9          | 23.8  | 0.886          | 0.907        |          |
|                        |            |            | Right Tilt    | 9400  | 1880.0      | 23.9          | 23.8  | 0.374          | 0.383        |          |
| Body-worn & Hotspot    | Rel 99 RMC | 10         | Rear          | 9262  | 1852.4      | 23.9          | 23.8  | 0.976          | 0.999        | 10       |
|                        |            |            |               | 9400  | 1880.0      | 23.9          | 23.8  | 0.945          | 0.967        |          |
|                        |            |            |               | 9538  | 1907.6      | 23.9          | 23.8  | 0.924          | 0.946        |          |
|                        |            |            | Front         | 9262  | 1852.4      | 23.9          | 23.8  | 1.030          | <b>1.054</b> |          |
|                        |            |            |               | 9400  | 1880.0      | 23.9          | 23.8  | 0.937          | 0.959        |          |
|                        |            |            |               | 9538  | 1907.6      | 23.9          | 23.8  | 0.898          | 0.919        |          |
| Hotspot                | Rel 99 RMC | 10         | Edge 2        | 9262  | 1852.4      | 23.9          | 23.8  | 0.939          | 0.961        |          |
|                        |            |            |               | 9400  | 1880.0      | 23.9          | 23.8  | 0.948          | 0.970        |          |
|                        |            |            |               | 9538  | 1907.6      | 23.9          | 23.8  | 1.010          | 1.034        |          |
|                        |            |            | Edge 3        | 9400  | 1880.0      | 23.9          | 23.8  | 0.546          | 0.559        |          |

**10.5. W-CDMA Band IV**

| RF Exposure Conditions | Mode       | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|------------------------|------------|------------|---------------|-------|-------------|---------------|-------|----------------|--------------|----------|
|                        |            |            |               |       |             | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| Head                   | Rel 99 RMC | 0          | Left Touch    | 1413  | 1732.6      | 23.9          | 23.8  | 0.443          | 0.456        | 11       |
|                        |            |            | Left Tilt     | 1413  | 1732.6      | 23.9          | 23.8  | 0.299          | 0.308        |          |
|                        |            |            | Right Touch   | 1312  | 1712.4      | 23.9          | 23.8  | 0.741          | 0.758        |          |
|                        |            |            |               | 1413  | 1732.6      | 23.9          | 23.8  | 0.861          | 0.887        |          |
|                        |            |            |               | 1513  | 1752.6      | 23.9          | 23.8  | 1.010          | <b>1.026</b> |          |
|                        |            |            | Right Tilt    | 1413  | 1732.6      | 23.9          | 23.8  | 0.367          | 0.378        |          |
| Body-worn & Hotspot    | Rel 99 RMC | 10         | Rear          | 1312  | 1712.4      | 23.9          | 23.8  | 0.729          | 0.746        | 12       |
|                        |            |            |               | 1413  | 1732.6      | 23.9          | 23.8  | 0.809          | 0.834        |          |
|                        |            |            |               | 1513  | 1752.6      | 23.9          | 23.8  | 0.868          | 0.882        |          |
|                        |            |            | Front         | 1312  | 1712.4      | 23.9          | 23.8  | 0.830          | 0.849        |          |
|                        |            |            |               | 1413  | 1732.6      | 23.9          | 23.8  | 0.922          | 0.950        |          |
|                        |            |            |               | 1513  | 1752.6      | 23.9          | 23.8  | 1.050          | <b>1.067</b> |          |
| Hotspot                | Rel 99 RMC | 10         | Edge 2        | 1413  | 1732.6      | 23.9          | 23.8  | 0.617          | 0.636        |          |
|                        |            |            | Edge 3        | 1413  | 1732.6      | 23.9          | 23.8  | 0.613          | 0.632        |          |

**10.6. W-CDMA Band V**

| RF Exposure Conditions | Mode       | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|------------------------|------------|------------|---------------|-------|-------------|---------------|-------|----------------|--------------|----------|
|                        |            |            |               |       |             | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| Head                   | Rel 99 RMC | 0          | Left Touch    | 4183  | 836.6       | 24.7          | 24.5  | 0.547          | <b>0.573</b> | 13       |
|                        |            |            | Left Tilt     | 4183  | 836.6       | 24.7          | 24.5  | 0.344          | 0.360        |          |
|                        |            |            | Right Touch   | 4183  | 836.6       | 24.7          | 24.5  | 0.427          | 0.447        |          |
|                        |            |            | Right Tilt    | 4183  | 836.6       | 24.7          | 24.5  | 0.293          | 0.307        |          |
| Body-worn & Hotspot    | Rel 99 RMC | 10         | Rear          | 4183  | 836.6       | 24.7          | 24.5  | 0.682          | 0.714        | 14       |
|                        |            |            | Front         | 4183  | 836.6       | 24.7          | 24.5  | 0.713          | <b>0.747</b> |          |
| Hotspot                | Rel 99 RMC | 10         | Edge 2        | 4183  | 836.6       | 24.7          | 24.5  | 0.278          | 0.291        |          |
|                        |            |            | Edge 3        | 4183  | 836.6       | 24.7          | 24.5  | 0.515          | 0.539        |          |
|                        |            |            | Edge 4        | 4183  | 836.6       | 24.7          | 24.5  | 0.690          | 0.723        |          |

**10.7. CDMA BC0**

| RF Exposure Conditions | Mode             | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|------------------------|------------------|------------|---------------|-------|-------------|---------------|-------|----------------|--------------|----------|
|                        |                  |            |               |       |             | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| Head                   | 1xRTT (RC3 SO55) | 0          | Left Touch    | 384   | 836.5       | 24.7          | 24.6  | 0.527          | <b>0.539</b> | 15       |
|                        |                  |            | Left Tilt     | 384   | 836.5       | 24.7          | 24.6  | 0.299          | 0.306        |          |
|                        |                  |            | Right Touch   | 384   | 836.5       | 24.7          | 24.6  | 0.424          | 0.434        |          |
|                        |                  |            | Right Tilt    | 384   | 836.5       | 24.7          | 24.6  | 0.272          | 0.278        |          |
|                        | 1xEVDO (Rel. 0)  | 0          | Left Touch    | 384   | 836.5       | 24.7          | 24.4  | 0.487          | 0.522        |          |
|                        |                  |            | Left Tilt     | 384   | 836.5       | 24.7          | 24.4  | 0.281          | 0.301        |          |
|                        |                  |            | Right Touch   | 384   | 836.5       | 24.7          | 24.4  | 0.408          | 0.437        |          |
|                        |                  |            | Right Tilt    | 384   | 836.5       | 24.7          | 24.4  | 0.246          | 0.264        |          |
| Body-worn & Hotspot    | 1xRTT (RC3 SO32) | 10         | Rear          | 384   | 836.5       | 24.7          | 24.6  | 0.697          | <b>0.713</b> | 16       |
|                        |                  |            | Front         | 384   | 836.5       | 24.7          | 24.6  | 0.669          | 0.685        |          |
| Hotspot                | 1xRTT (RC3 SO32) | 10         | Edge 2        | 384   | 836.5       | 24.7          | 24.6  | 0.441          | 0.451        |          |
|                        |                  |            | Edge 3        | 384   | 836.5       | 24.7          | 24.6  | 0.537          | 0.550        |          |
|                        |                  |            | Edge 4        | 384   | 836.5       | 24.7          | 24.6  | 0.686          | 0.702        |          |

**10.8. CDMA BC1**

| RF Exposure Conditions | Mode             | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|------------------------|------------------|------------|---------------|-------|-------------|---------------|-------|----------------|--------------|----------|
|                        |                  |            |               |       |             | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| Head                   | 1xRTT (RC3 SO55) | 0          | Left Touch    | 600   | 1880.0      | 24.7          | 24.6  | 0.554          | 0.567        |          |
|                        |                  |            | Left Tilt     | 600   | 1880.0      | 24.7          | 24.6  | 0.277          | 0.283        |          |
|                        |                  |            | Right Touch   | 25    | 1851.3      | 24.7          | 24.6  | 1.070          | 1.095        |          |
|                        |                  |            |               | 600   | 1880.0      | 24.7          | 24.6  | 1.060          | 1.085        |          |
|                        |                  |            | Right Tilt    | 1175  | 1908.8      | 24.7          | 24.6  | 0.952          | 0.974        |          |
|                        |                  |            |               | 600   | 1880.0      | 24.7          | 24.6  | 0.376          | 0.385        |          |
|                        | 1xEVDO (Rel. 0)  | 0          | Left Touch    | 600   | 1880.0      | 23.7          | 23.7  | 0.589          | 0.590        |          |
|                        |                  |            | Left Tilt     | 600   | 1880.0      | 23.7          | 23.7  | 0.245          | 0.246        |          |
|                        |                  |            | Right Touch   | 25    | 1851.3      | 23.7          | 23.7  | 1.240          | <b>1.251</b> | 17       |
|                        |                  |            |               | 600   | 1880.0      | 23.7          | 23.7  | 1.200          | 1.203        |          |
|                        |                  |            |               | 1175  | 1908.8      | 23.7          | 23.7  | 1.120          | 1.125        |          |
|                        |                  |            | Right Tilt    | 600   | 1880.0      | 23.7          | 23.7  | 0.369          | 0.370        |          |
| Body-worn & Hotspot    | 1xRTT (RC3 SO32) | 10         | Rear          | 25    | 1851.3      | 24.7          | 24.7  | 1.110          | 1.110        |          |
|                        |                  |            |               | 600   | 1880.0      | 24.7          | 24.6  | 1.040          | 1.064        |          |
|                        |                  |            |               | 1175  | 1908.8      | 24.7          | 24.5  | 0.944          | 0.988        |          |
|                        |                  |            | Front         | 25    | 1851.3      | 24.7          | 24.7  | 1.280          | <b>1.280</b> | 18       |
|                        |                  |            |               | 600   | 1880.0      | 24.7          | 24.6  | 1.190          | 1.218        |          |
|                        |                  |            |               | 1175  | 1908.8      | 24.7          | 24.5  | 1.100          | 1.152        |          |
|                        | 1xEVDO (Rel. 0)  | 10         | Front         | 25    | 1851.3      | 23.7          | 23.7  | 1.130          | 1.140        |          |
|                        |                  |            |               | 600   | 1880.0      | 23.7          | 23.7  | 1.180          | 1.183        |          |
|                        |                  |            |               | 1175  | 1908.8      | 23.7          | 23.7  | 1.200          | 1.206        |          |
|                        | 1xEVDO (Rel. A)  | 10         | Front         | 25    | 1851.3      | 23.7          | 23.6  | 1.180          | 1.207        |          |
|                        |                  |            |               | 600   | 1880.0      | 23.7          | 23.7  | 0.945          | 0.956        |          |
|                        |                  |            |               | 1175  | 1908.8      | 23.7          | 23.7  | 0.970          | 0.981        |          |
| Hotspot                | 1xRTT (RC3 SO32) | 10         | Edge 2        | 25    | 1851.3      | 24.7          | 24.7  | 1.150          | 1.150        |          |
|                        |                  |            |               | 600   | 1880.0      | 24.7          | 24.6  | 1.180          | 1.207        |          |
|                        |                  |            |               | 1175  | 1908.8      | 24.7          | 24.5  | 1.060          | 1.110        |          |
|                        |                  |            | Edge 3        | 600   | 1880.0      | 24.7          | 24.6  | 0.679          | 0.695        |          |

**10.9. CDMA BC10**

| RF Exposure Conditions | Mode             | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|------------------------|------------------|------------|---------------|-------|-------------|---------------|-------|----------------|--------------|----------|
|                        |                  |            |               |       |             | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| Head                   | 1xRTT (RC3 SO55) | 0          | Left Touch    | 580   | 820.5       | 24.7          | 24.6  | 0.534          | 0.549        |          |
|                        |                  |            | Left Tilt     | 580   | 820.5       | 24.7          | 24.6  | 0.288          | 0.296        |          |
|                        |                  |            | Right Touch   | 580   | 820.5       | 24.7          | 24.6  | 0.411          | 0.423        |          |
|                        |                  |            | Right Tilt    | 580   | 820.5       | 24.7          | 24.6  | 0.266          | 0.273        |          |
|                        | 1xEVDO (Rel. 0)  | 0          | Left Touch    | 580   | 820.5       | 24.7          | 24.5  | 0.524          | <b>0.551</b> | 19       |
|                        |                  |            | Left Tilt     | 580   | 820.5       | 24.7          | 24.5  | 0.292          | 0.307        |          |
|                        |                  |            | Right Touch   | 580   | 820.5       | 24.7          | 24.5  | 0.416          | 0.438        |          |
|                        |                  |            | Right Tilt    | 580   | 820.5       | 24.7          | 24.5  | 0.269          | 0.283        |          |
| Body-worn & Hotspot    | 1xRTT (RC3 SO32) | 10         | Rear          | 580   | 820.5       | 24.7          | 24.6  | 0.722          | 0.747        |          |
|                        |                  |            | Front         | 580   | 820.5       | 24.7          | 24.6  | 0.729          | <b>0.755</b> | 20       |
| Hotspot                | 1xRTT (RC3 SO32) | 10         | Edge 2        | 580   | 820.5       | 24.7          | 24.6  | 0.326          | 0.337        |          |
|                        |                  |            | Edge 3        | 580   | 820.5       | 24.7          | 24.6  | 0.465          | 0.481        |          |
|                        |                  |            | Edge 4        | 580   | 820.5       | 24.7          | 24.6  | 0.699          | 0.724        |          |

**10.10. LTE Band 2 (20MHz Bandwidth)**

| RF Exposure Conditions | Mode | 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       |          |
| Head                   | QPSK | 0          | Left Touch    | 18900 | 1880.0      | 1             | 0         | 23.4          | 23.4  | 0.621          | 0.621        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.481          | 0.505        |          |
|                        |      |            | Left Tilt     | 18900 | 1880.0      | 1             | 0         | 23.4          | 23.4  | 0.325          | 0.325        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.238          | 0.250        |          |
|                        |      |            | Right Touch   | 18700 | 1860.0      | 1             | 0         | 23.4          | 23.4  | 0.983          | <b>0.983</b> | 21       |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.4  | 0.854          | 0.864        |          |
|                        |      |            |               | 18900 | 1880.0      | 1             | 0         | 23.4          | 23.4  | 0.966          | 0.966        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.815          | 0.855        |          |
|                        |      |            |               |       |             | 100           | 0         | 22.4          | 22.3  | 0.804          | 0.830        |          |
|                        |      |            |               | 19100 | 1900.0      | 1             | 0         | 23.4          | 23.4  | 0.930          | 0.934        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.3  | 0.818          | 0.833        |          |
|                        |      |            | Right Tilt    | 18900 | 1880.0      | 1             | 0         | 23.4          | 23.4  | 0.354          | 0.354        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.263          | 0.276        |          |
| Body-worn & Hotspot    | QPSK | 10         | Rear          | 18900 | 1880.0      | 1             | 0         | 23.4          | 23.4  | 0.744          | 0.744        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.640          | 0.672        |          |
|                        |      |            | Front         | 18700 | 1860.0      | 1             | 0         | 23.4          | 23.4  | 1.140          | <b>1.140</b> | 22       |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.4  | 0.933          | 0.944        |          |
|                        |      |            |               | 18900 | 1880.0      | 1             | 0         | 23.4          | 23.4  | 1.050          | 1.050        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.930          | 0.976        |          |
|                        |      |            |               |       |             | 100           | 0         | 22.4          | 22.3  | 0.886          | 0.915        |          |
|                        |      |            |               | 19100 | 1900.0      | 1             | 0         | 23.4          | 23.4  | 0.100          | 0.100        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.3  | 0.872          | 0.888        |          |
| Hotspot                | QPSK | 10         | Edge 2        | 18900 | 1880.0      | 1             | 0         | 23.4          | 23.4  | 0.764          | 0.764        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.670          | 0.703        |          |
|                        |      |            | Edge 3        | 18900 | 1880.0      | 1             | 0         | 23.4          | 23.4  | 0.593          | 0.593        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.516          | 0.542        |          |

**10.11. LTE Band 4 (20MHz Bandwidth)**

| RF Exposure Conditions | Mode | 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       |          |
| Head                   | QPSK | 0          | Left Touch    | 20175 | 1732.5      | 1             | 0         | 23.4          | 23.4  | 0.447          | 0.447        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.342          | 0.357        |          |
|                        |      |            | Left Tilt     | 20175 | 1732.5      | 1             | 0         | 23.4          | 23.4  | 0.315          | 0.315        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.252          | 0.263        |          |
|                        |      |            | Right Touch   | 20025 | 1717.5      | 1             | 0         | 23.4          | 23.4  | 0.761          | 0.761        |          |
|                        |      |            |               | 20175 | 1732.5      | 1             | 0         | 23.4          | 23.4  | 0.829          | 0.829        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.646          | 0.675        |          |
|                        |      |            |               | 20325 | 1747.5      | 1             | 37        | 23.4          | 23.4  | 0.966          | <b>0.977</b> | 23       |
|                        |      |            | Right Tilt    | 20175 | 1732.5      | 1             | 0         | 23.4          | 23.4  | 0.315          | 0.315        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.246          | 0.257        |          |
| Body & Hotspot         | QPSK | 10         | Rear          | 20025 | 1717.5      | 1             | 0         | 23.4          | 23.4  | 1.090          | 1.090        |          |
|                        |      |            |               |       |             | 36            | 20        | 22.4          | 22.1  | 0.891          | 0.959        |          |
|                        |      |            |               | 20175 | 1732.5      | 1             | 0         | 23.4          | 23.4  | 1.050          | 1.050        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.831          | 0.868        |          |
|                        |      |            |               |       |             | 100           | 0         | 22.4          | 22.1  | 0.839          | 0.895        |          |
|                        |      |            |               | 20325 | 1747.5      | 1             | 37        | 23.4          | 23.4  | 1.160          | <b>1.173</b> | 24       |
|                        |      |            | Front         | 20025 | 1717.5      | 36            | 20        | 22.4          | 22.3  | 1.040          | 1.074        |          |
|                        |      |            |               |       |             | 1             | 0         | 23.4          | 23.4  | 0.866          | 0.866        |          |
|                        |      |            |               | 20175 | 1732.5      | 36            | 20        | 22.4          | 22.1  | 0.798          | 0.859        |          |
|                        |      |            |               |       |             | 1             | 0         | 23.4          | 23.4  | 1.030          | 1.030        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.792          | 0.827        |          |
|                        |      |            |               |       |             | 100           | 0         | 22.4          | 22.1  | 0.839          | 0.895        |          |
|                        |      |            |               | 20325 | 1747.5      | 1             | 37        | 23.4          | 23.4  | 1.100          | 1.113        |          |
|                        |      |            |               |       |             | 36            | 20        | 22.4          | 22.3  | 0.957          | 0.988        |          |
|                        |      |            |               |       |             | 75            | 0         | 22.4          | 22.3  | 0.960          | 0.994        |          |
| Hotspot                | QPSK | 10         | Edge 2        | 20175 | 1732.5      | 1             | 0         | 23.4          | 23.4  | 0.752          | 0.752        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.585          | 0.611        |          |
|                        |      |            | Edge 3        | 20175 | 1732.5      | 1             | 0         | 23.4          | 23.4  | 0.698          | 0.698        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.542          | 0.566        |          |

**10.12. LTE Band 5 (10MHz Bandwidth)**

SAR for LTE Band 5 is covered by LTE Band 26 due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

**10.13. LTE Band 7 (20MHz Bandwidth)**

| RF Exposure Conditions | Mode | 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       |          |
| Head                   | QPSK | 0          | Left Touch    | 21100 | 2535.0      | 1             | 0         | 23.7          | 23.5  | 0.594          | <b>0.622</b> | 25       |
|                        |      |            |               |       |             | 50            | 0         | 22.7          | 22.3  | 0.458          | 0.502        |          |
|                        |      |            | Left Tilt     | 21100 | 2535.0      | 1             | 0         | 23.7          | 23.5  | 0.195          | 0.204        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.7          | 22.3  | 0.149          | 0.163        |          |
|                        |      |            | Right Touch   | 21100 | 2535.0      | 1             | 0         | 23.7          | 23.5  | 0.201          | 0.210        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.7          | 22.3  | 0.136          | 0.149        |          |
| Body-worn & Hotspot    | QPSK | 10         | Rear          | 21100 | 2535.0      | 1             | 0         | 23.7          | 23.5  | 0.498          | 0.521        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.7          | 22.3  | 0.399          | 0.437        |          |
|                        |      |            | Front         | 20850 | 2535.0      | 1             | 0         | 23.7          | 23.5  | 0.754          | 0.790        |          |
|                        |      |            |               | 21100 | 2535.0      | 1             | 0         | 23.7          | 23.5  | 0.805          | 0.843        |          |
|                        |      |            |               | 21350 | 2560.0      | 50            | 0         | 22.7          | 22.3  | 0.611          | 0.670        |          |
|                        |      |            |               |       |             | 1             | 49        | 23.7          | 23.0  | 0.829          | <b>0.974</b> | 26       |
| Hotspot                | QPSK | 10         | Edge 2        | 21100 | 2535.0      | 1             | 0         | 23.7          | 23.5  | 0.053          | 0.056        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.7          | 22.3  | 0.045          | 0.050        |          |
|                        |      |            | Edge 3        | 21100 | 2535.0      | 1             | 0         | 23.7          | 23.5  | 0.516          | 0.540        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.7          | 22.3  | 0.445          | 0.488        |          |

**10.14. LTE Band 12 (10MHz Bandwidth)**

| RF Exposure Conditions | Mode | 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       |          |
| Head                   | QPSK | 0          | Left Touch    | 23095 | 707.5       | 1             | 25        | 24.2          | 24.2  | 0.215          | <b>0.215</b> | 27       |
|                        |      |            |               |       |             | 25            | 0         | 23.2          | 22.8  | 0.178          | 0.195        |          |
|                        |      |            | Left Tilt     | 23095 | 707.5       | 1             | 25        | 24.2          | 24.2  | 0.122          | 0.122        |          |
|                        |      |            |               |       |             | 25            | 0         | 23.2          | 22.8  | 0.100          | 0.109        |          |
|                        |      |            | Right Touch   | 23095 | 707.5       | 1             | 25        | 24.2          | 24.2  | 0.179          | 0.179        |          |
|                        |      |            |               |       |             | 25            | 0         | 23.2          | 22.8  | 0.147          | 0.161        |          |
| Body-worn & Hotspot    | QPSK | 10         | Rear          | 23095 | 707.5       | 1             | 25        | 24.2          | 24.2  | 0.403          | <b>0.403</b> | 28       |
|                        |      |            |               |       |             | 25            | 0         | 23.2          | 22.8  | 0.334          | 0.366        |          |
|                        |      |            | Front         | 23095 | 707.5       | 1             | 25        | 24.2          | 24.2  | 0.301          | 0.301        |          |
|                        |      |            |               |       |             | 25            | 0         | 23.2          | 22.8  | 0.250          | 0.274        |          |
| Hotspot                | QPSK | 10         | Edge 2        | 23095 | 707.5       | 1             | 25        | 24.2          | 24.2  | 0.275          | 0.275        |          |
|                        |      |            |               |       |             | 25            | 0         | 23.2          | 22.8  | 0.228          | 0.250        |          |
|                        |      |            | Edge 3        | 23095 | 707.5       | 1             | 25        | 24.2          | 24.2  | 0.184          | 0.184        |          |
|                        |      |            |               |       |             | 25            | 0         | 23.2          | 22.8  | 0.155          | 0.170        |          |
|                        |      |            | Edge 4        | 23095 | 707.5       | 1             | 25        | 24.2          | 24.2  | 0.479          | <b>0.479</b> | 29       |
|                        |      |            |               |       |             | 25            | 0         | 23.2          | 22.8  | 0.402          | 0.441        |          |

**10.15. LTE Band 13 (10MHz Bandwidth)**

| RF Exposure Conditions | Mode | 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       |          |
| Head                   | QPSK | 0          | Left Touch    | 23230 | 782.0       | 1             | 0         | 24.2          | 24.2  | 0.306          | <b>0.306</b> | 30       |
|                        |      |            |               |       |             | 25            | 25        | 23.2          | 22.9  | 0.218          | 0.234        |          |
|                        |      |            | Left Tilt     | 23230 | 782.0       | 1             | 0         | 24.2          | 24.2  | 0.174          | 0.174        |          |
|                        |      |            |               |       |             | 25            | 25        | 23.2          | 22.9  | 0.124          | 0.133        |          |
|                        |      |            | Right Touch   | 23230 | 782.0       | 1             | 0         | 24.2          | 24.2  | 0.224          | 0.224        |          |
|                        |      |            |               |       |             | 25            | 25        | 23.2          | 22.9  | 0.163          | 0.175        |          |
|                        |      |            | Right Tilt    | 23230 | 782.0       | 1             | 0         | 24.2          | 24.2  | 0.150          | 0.150        |          |
|                        |      |            |               |       |             | 25            | 25        | 23.2          | 22.9  | 0.107          | 0.115        |          |
| Body-worn & Hotspot    | QPSK | 10         | Rear          | 23230 | 782.0       | 1             | 0         | 24.2          | 24.2  | 0.453          | <b>0.453</b> | 31       |
|                        |      |            |               |       |             | 25            | 25        | 23.2          | 22.9  | 0.380          | 0.407        |          |
|                        |      |            | Front         | 23230 | 782.0       | 1             | 0         | 24.2          | 24.2  | 0.368          | 0.368        |          |
|                        |      |            |               |       |             | 25            | 25        | 23.2          | 22.9  | 0.304          | 0.326        |          |
| Hotspot                | QPSK | 10         | Edge 2        | 23230 | 782.0       | 1             | 0         | 24.2          | 24.2  | 0.302          | 0.302        |          |
|                        |      |            |               |       |             | 25            | 25        | 23.2          | 22.9  | 0.269          | 0.288        |          |
|                        |      |            | Edge 3        | 23230 | 782.0       | 1             | 0         | 24.2          | 24.2  | 0.198          | 0.198        |          |
|                        |      |            |               |       |             | 25            | 25        | 23.2          | 22.9  | 0.177          | 0.190        |          |
|                        |      |            | Edge 4        | 23230 | 782.0       | 1             | 0         | 24.2          | 24.2  | 0.551          | <b>0.551</b> | 32       |
|                        |      |            |               |       |             | 25            | 25        | 23.2          | 22.9  | 0.479          | 0.513        |          |

**10.16. LTE Band 17 (10MHz Bandwidth)**

SAR for LTE Band 17 is covered by LTE Band 12 due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

**10.17. LTE Band 25 (20MHz Bandwidth)**

| RF Exposure Conditions | Mode   | 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       |          |
| Head                   | QPSK   | 0          | Left Touch    | 26365 | 1882.5      | 1             | 0         | 23.4          | 23.4  | 0.623          | 0.623        |          |
|                        |        |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.441          | 0.463        |          |
|                        |        |            | Left Tilt     | 26365 | 1882.5      | 1             | 0         | 23.4          | 23.4  | 0.309          | 0.309        |          |
|                        |        |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.218          | 0.229        |          |
|                        |        |            | Right Touch   | 26140 | 1860.0      | 1             | 49        | 23.4          | 23.2  | 1.170          | 1.214        |          |
|                        |        |            |               |       |             | 50            | 0         | 22.4          | 22.4  | 0.857          | 0.867        |          |
|                        |        |            |               | 26365 | 1882.5      | 1             | 0         | 23.4          | 23.4  | 1.190          | <b>1.190</b> | 33       |
|                        |        |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.829          | 0.870        |          |
|                        |        |            |               | 26590 | 1905.0      | 1             | 99        | 23.4          | 23.4  | 1.110          | 1.123        |          |
|                        |        |            |               |       |             | 50            | 0         | 22.4          | 22.3  | 0.845          | 0.861        |          |
|                        |        |            | Right Tilt    | 26365 | 1882.5      | 100           | 0         | 22.4          | 22.4  | 0.838          | 0.844        |          |
|                        |        |            |               |       |             | 1             | 0         | 23.4          | 23.4  | 0.321          | 0.321        |          |
|                        |        |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.233          | 0.245        |          |
| Body-worn & Hotspot    | QPSK   | 10         | Rear          | 26140 | 1860.0      | 1             | 49        | 23.4          | 23.2  | 1.020          | <b>1.058</b> | 34       |
|                        |        |            |               | 26365 | 1882.5      | 1             | 0         | 23.4          | 23.4  | 0.873          | 0.873        |          |
|                        |        |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.670          | 0.703        |          |
|                        |        |            |               | 26590 | 1905.0      | 1             | 99        | 23.4          | 23.4  | 0.869          | 0.879        |          |
|                        |        |            | Front         | 26140 | 1860.0      | 1             | 49        | 23.4          | 23.2  | 0.997          | 1.034        |          |
|                        |        |            |               |       |             | 50            | 0         | 22.4          | 22.4  | 0.824          | 0.834        |          |
|                        |        |            |               | 26365 | 1882.5      | 1             | 0         | 23.4          | 23.4  | 0.963          | 0.963        |          |
|                        |        |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.736          | 0.772        |          |
|                        |        |            |               | 26590 | 1905.0      | 1             | 99        | 23.4          | 23.4  | 1.000          | 1.012        |          |
|                        |        |            |               |       |             | 50            | 0         | 22.4          | 22.3  | 0.772          | 0.786        |          |
|                        |        |            |               |       |             | 100           | 0         | 22.4          | 22.4  | 0.792          | 0.797        |          |
|                        |        |            |               |       |             |               |           |               |       |                |              |          |
|                        |        |            | Hotspot       | QPSK  | 10          | Edge 2        | 26140     | 1860.0        | 1     | 49             | 23.4         | 23.2     |
| 50                     | 0      | 22.4       |               |       |             |               |           |               | 22.4  | 0.781          | 0.790        |          |
| 26365                  | 1882.5 | 1          |               |       |             |               | 0         | 23.4          | 23.4  | 1.030          | 1.030        |          |
|                        |        | 50         |               |       |             |               | 0         | 22.4          | 22.2  | 0.758          | 0.796        |          |
| 26590                  | 1905.0 | 1          |               |       |             |               | 49        | 23.4          | 23.4  | 0.996          | 1.008        |          |
|                        |        | 50         |               |       |             |               | 0         | 22.4          | 22.3  | 0.769          | 0.783        |          |
| Edge 3                 | 26365  | 1882.5     |               |       |             | 100           | 0         | 22.4          | 22.4  | 0.907          | 0.913        |          |
|                        |        |            |               |       |             | 1             | 49        | 23.4          | 23.4  | 0.662          | 0.662        |          |
|                        | 26590  | 1905.0     |               |       |             | 1             | 99        | 23.4          | 23.4  | 1.000          | 1.012        |          |
|                        |        |            |               |       |             | 50            | 0         | 22.4          | 22.2  | 0.506          | 0.531        |          |

**10.18. LTE Band 26 (15MHz Bandwidth)**

| RF Exposure Conditions | Mode | 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       |          |
| Head                   | QPSK | 0          | Left Touch    | 26865 | 831.5       | 1             | 37        | 24.2          | 24.1  | 0.498          | <b>0.510</b> | 36       |
|                        |      |            |               |       |             | 36            | 0         | 23.2          | 22.8  | 0.359          | 0.394        |          |
|                        |      |            | Left Tilt     | 26865 | 831.5       | 1             | 37        | 24.2          | 24.1  | 0.299          | 0.306        |          |
|                        |      |            |               |       |             | 36            | 0         | 23.2          | 22.8  | 0.216          | 0.237        |          |
|                        |      |            | Right Touch   | 26865 | 831.5       | 1             | 37        | 24.2          | 24.1  | 0.390          | 0.399        |          |
|                        |      |            |               |       |             | 36            | 0         | 23.2          | 22.8  | 0.286          | 0.314        |          |
|                        |      |            | Right Tilt    | 26865 | 831.5       | 1             | 37        | 24.2          | 24.1  | 0.276          | 0.282        |          |
|                        |      |            |               |       |             | 36            | 0         | 23.2          | 22.8  | 0.197          | 0.216        |          |
| Body-worn & Hotspot    | QPSK | 10         | Rear          | 26865 | 831.5       | 1             | 37        | 24.2          | 24.1  | 0.632          | <b>0.647</b> | 37       |
|                        |      |            |               |       |             | 36            | 0         | 23.2          | 22.8  | 0.469          | 0.514        |          |
|                        |      |            | Front         | 26865 | 831.5       | 1             | 37        | 24.2          | 24.1  | 0.489          | 0.500        |          |
|                        |      |            |               |       |             | 36            | 0         | 23.2          | 22.8  | 0.351          | 0.385        |          |
| Hotspot                | QPSK | 10         | Edge 2        | 26865 | 831.5       | 1             | 37        | 24.2          | 24.1  | 0.285          | 0.292        |          |
|                        |      |            |               |       |             | 36            | 0         | 23.2          | 22.8  | 0.206          | 0.226        |          |
|                        |      |            | Edge 3        | 26865 | 831.5       | 1             | 37        | 24.2          | 24.1  | 0.468          | 0.479        |          |
|                        |      |            |               |       |             | 36            | 0         | 23.2          | 22.8  | 0.338          | 0.371        |          |
|                        |      |            | Edge 4        | 26865 | 831.5       | 1             | 37        | 24.2          | 24.1  | 0.633          | <b>0.648</b> | 38       |
|                        |      |            |               |       |             | 36            | 0         | 23.2          | 22.8  | 0.458          | 0.502        |          |
|                        |      |            |               |       |             |               |           |               |       |                |              |          |
|                        |      |            |               |       |             |               |           |               |       |                |              |          |

**10.19. LTE Band 41 (20MHz Bandwidth)**

| RF Exposure Conditions | Mode | 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       |          |
| Head                   | QPSK | 0          | Left Touch    | 40620 | 2593.0      | 1             | 0         | 23.2          | 23.2  | 0.259          | <b>0.259</b> | 39       |
|                        |      |            |               |       |             | 50            | 0         | 22.2          | 21.7  | 0.203          | 0.228        |          |
|                        |      |            | Left Tilt     | 40620 | 2593.0      | 1             | 0         | 23.2          | 23.2  | 0.068          | 0.068        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.2          | 21.7  | 0.050          | 0.056        |          |
|                        |      |            | Right Touch   | 40620 | 2593.0      | 1             | 0         | 23.2          | 23.2  | 0.100          | 0.100        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.2          | 21.7  | 0.073          | 0.082        |          |
|                        |      |            | Right Tilt    | 40620 | 2593.0      | 1             | 0         | 23.2          | 23.2  | 0.075          | 0.075        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.2          | 21.7  | 0.058          | 0.066        |          |
| Body-worn & Hotspot    | QPSK | 10         | Rear          | 40620 | 2593.0      | 1             | 0         | 23.2          | 23.2  | 0.173          | 0.173        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.2          | 21.7  | 0.135          | 0.151        |          |
|                        |      |            | Front         | 40620 | 2593.0      | 1             | 0         | 23.2          | 23.2  | 0.366          | <b>0.366</b> | 40       |
|                        |      |            |               |       |             | 50            | 0         | 22.2          | 21.7  | 0.280          | 0.314        |          |
| Hotspot                | QPSK | 10         | Edge 2        | 40620 | 2593.0      | 1             | 0         | 23.2          | 23.2  | 0.031          | 0.031        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.2          | 21.7  | 0.022          | 0.024        |          |
|                        |      |            | Edge 3        | 40620 | 2593.0      | 1             | 0         | 23.2          | 23.2  | 0.254          | 0.254        |          |
|                        |      |            |               |       |             | 50            | 0         | 22.2          | 21.7  | 0.198          | 0.222        |          |

## 10.20. Wi-Fi (DTS Band)

| RF Exposure Conditions | Mode           | Dist. (mm) | ANT    | Test Position | Ch #. | Freq. (MHz) | Area Scan Max. SAR (W/kg) | Power (dBm)   |       | 1-g SAR (W/kg) |        | Note(s) | Plot |
|------------------------|----------------|------------|--------|---------------|-------|-------------|---------------------------|---------------|-------|----------------|--------|---------|------|
|                        |                |            |        |               |       |             |                           | Tune-up limit | Meas. | Meas.          | Scaled |         |      |
| Head                   | 802.11b 1 Mbps | 0          | Core 0 | Left Touch    | 6     | 2437        | 0.30                      | 18.0          | 17.5  |                |        |         |      |
|                        |                |            |        | Left Tilt     | 6     | 2437        | 0.26                      | 18.0          | 17.5  |                |        |         |      |
|                        |                |            |        | Right Touch   | 6     | 2437        | 0.72                      | 18.0          | 17.5  | 0.706          | 0.787  | 2       | 41   |
|                        |                |            |        | Right Tilt    | 6     | 2437        | 0.59                      | 18.0          | 17.5  | 0.591          | 0.659  |         |      |
|                        |                |            | Core 1 | Left Touch    | 6     | 2437        | 0.02                      | 18.0          | 17.5  |                |        |         |      |
|                        |                |            |        | Left Tilt     | 6     | 2437        | 0.01                      | 18.0          | 17.5  |                |        |         |      |
|                        |                |            |        | Right Touch   | 6     | 2437        | 0.07                      | 18.0          | 17.5  | 0.050          | 0.056  | 1       |      |
|                        |                |            |        | Right Tilt    | 6     | 2437        | 0.04                      | 18.0          | 17.5  |                |        |         |      |
| Body & Hotspot         | 802.11b 1 Mbps | 10         | Core 0 | Rear          | 6     | 2437        | 0.21                      | 18.0          | 17.5  | 0.283          | 0.315  | 1       | 42   |
|                        |                |            |        | Front         | 6     | 2437        | 0.18                      | 18.0          | 17.5  |                |        |         |      |
|                        |                |            | Core 1 | Rear          | 6     | 2437        | 0.07                      | 18.0          | 17.5  | 0.080          | 0.089  | 1       |      |
|                        |                |            |        | Front         | 6     | 2437        | 0.03                      | 18.0          | 17.5  |                |        |         |      |
| Hotspot                | 802.11b 1 Mbps | 10         | Core 0 | Edge 1        | 6     | 2437        | 0.17                      | 18.0          | 17.5  |                |        |         |      |
|                        |                |            |        | Edge 4        | 6     | 2437        | 0.16                      | 18.0          | 17.5  |                |        |         |      |
|                        |                |            | Core 1 | Edge 1        | 6     | 2437        | 0.01                      | 18.0          | 17.5  |                |        |         |      |
|                        |                |            |        | Edge 4        | 6     | 2437        | 0.04                      | 18.0          | 17.5  |                |        |         |      |

### Note(s):

- Highest reported SAR is  $\leq 0.4$  W/kg. Therefore, further SAR measurements within this exposure condition are not required.
- Highest reported SAR is  $> 0.4$  W/kg. Due to the highest reported SAR for this test position, other test positions in Head exposure condition were evaluated until a SAR  $\leq 0.8$  W/kg was reported.

## 10.21. Wi-Fi (U-NII Band)

| RF Exposure Conditions | Mode           | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Area Scan Max. SAR (W/kg) | Core 0 Power (dBm) |       | Core 1 Power (dBm) |       | Core 0 1-g SAR (W/kg) |        | Core 1 1-g SAR (W/kg) |        | Note(s) | Plot |
|------------------------|----------------|------------|---------------|-------|-------------|---------------------------|--------------------|-------|--------------------|-------|-----------------------|--------|-----------------------|--------|---------|------|
|                        |                |            |               |       |             |                           | Tune-up limit      | Meas. | Tune-up limit      | Meas. | Meas.                 | Scaled | Meas.                 | Scaled |         |      |
| Head                   | 802.11a 6 Mbps | 0          | Left Touch    | 56    | 5280        | 0.281                     | 15.0               | 14.3  | 15.0               | 14.8  |                       |        |                       |        |         |      |
|                        |                |            |               | 100   | 5500        | 0.356                     | 15.0               | 14.7  | 15.0               | 15.0  |                       |        |                       |        |         |      |
|                        |                |            |               | 157   | 5785        | 0.627                     | 15.0               | 14.5  | 15.0               | 14.9  |                       |        |                       |        |         |      |
|                        |                |            | Left Tilt     | 56    | 5280        | 0.277                     | 15.0               | 14.3  | 15.0               | 14.8  |                       |        |                       |        |         |      |
|                        |                |            |               | 100   | 5500        | 0.278                     | 15.0               | 14.7  | 15.0               | 15.0  |                       |        |                       |        |         |      |
|                        |                |            |               | 157   | 5785        | 0.468                     | 15.0               | 14.5  | 15.0               | 14.9  |                       |        |                       |        |         |      |
|                        |                |            | Right Touch   | 56    | 5280        | 1.250                     | 15.0               | 14.3  | 15.0               | 14.8  | 0.653                 | 0.769  |                       |        | 2,3     | 43   |
|                        |                |            |               | 100   | 5500        | 0.894                     | 15.0               | 14.7  | 15.0               | 15.0  | 0.483                 | 0.522  |                       |        | 2,3     |      |
|                        |                |            |               | 157   | 5785        | 1.480                     | 15.0               | 14.5  | 15.0               | 14.9  | 0.618                 | 0.693  |                       |        | 2,3     |      |
|                        |                |            | Right Tilt    | 56    | 5280        | 0.712                     | 15.0               | 14.3  | 15.0               | 14.8  | 0.411                 | 0.484  |                       |        |         |      |
|                        |                |            |               | 100   | 5500        | 0.513                     | 15.0               | 14.7  | 15.0               | 15.0  | 0.308                 | 0.333  |                       |        |         |      |
|                        |                |            |               | 157   | 5785        | 0.715                     | 15.0               | 14.5  | 15.0               | 14.9  | 0.418                 | 0.469  |                       |        |         |      |
| Body & Hotspot         | 802.11a 6 Mbps | 10         | Rear          | 56    | 5280        | 0.631                     | 15.0               | 14.3  | 15.0               | 14.8  | 0.310                 | 0.365  |                       |        |         | 44   |
|                        |                |            |               | 100   | 5500        | 0.492                     | 15.0               | 14.7  | 15.0               | 15.0  | 0.270                 | 0.292  |                       |        |         |      |
|                        |                |            |               | 157   | 5785        | 0.571                     | 15.0               | 14.5  | 15.0               | 14.9  |                       |        |                       |        |         |      |
|                        |                |            | Front         | 56    | 5280        | 0.305                     | 15.0               | 14.3  | 15.0               | 14.8  | 0.127                 | 0.150  |                       |        | 4       |      |
|                        |                |            |               | 100   | 5500        | 0.263                     | 15.0               | 14.7  | 15.0               | 15.0  | 0.133                 | 0.144  |                       |        | 4       |      |
|                        |                |            |               | 157   | 5785        | 0.290                     | 15.0               | 14.5  | 15.0               | 14.9  | 0.161                 | 0.181  |                       |        | 4       |      |
| Hotspot                | 802.11a 6 Mbps | 10         | Edge 1        | 157   | 5785        | 0.232                     | 15.0               | 14.5  | 15.0               | 14.9  |                       |        |                       |        |         |      |
|                        |                |            | Edge 4        | 157   | 5785        | 0.588                     | 15.0               | 14.5  | 15.0               | 14.9  | 0.328                 | 0.368  |                       |        | 1,3     | 45   |

### Note(s):

- Highest reported SAR is  $\leq 0.4$  W/kg. Therefore, further SAR measurements within this exposure condition are not required.
- Highest reported SAR is  $> 0.4$  W/kg. Due to the highest reported SAR for this test position, other test positions in Head exposure condition were evaluated until a SAR  $\leq 0.8$  W/kg was reported.
- For 802.11a SAR testing, MIMO measurements were performed. The Antennas are right next to each other therefore the resulting measurement cubes were right on top of one another. Because of this, there is only one 1g/10g cube for the MIMO scans. The highest 1g cube measured for the MIMO scans was from the main antenna (Core 0). The results are illustrated in the table above.
- Additional testing required in order satisfying FCC simultaneous transmission limit criteria.

## 10.22. Bluetooth

| Frequency Band | RF Exposure Conditions | Mode | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg) |        | Plot No. |
|----------------|------------------------|------|------------|---------------|-------|-------------|---------------|-------|----------------|--------|----------|
|                |                        |      |            |               |       |             | Tune-up limit | Meas. | Meas.          | Scaled |          |
| 2.4 GHz        | Head                   | GFSK | 0          | Left Touch    | 39    | 2441.0      | 9.9           | 8.8   | 0.061          | 0.079  |          |
|                |                        |      |            | Left Tilt     | 39    | 2441.0      | 9.9           | 8.8   | 0.041          | 0.053  |          |
|                |                        |      |            | Right Touch   | 39    | 2441.0      | 9.9           | 8.8   | 0.141          | 0.182  | 46       |
|                |                        |      |            | Right Tilt    | 39    | 2441.0      | 9.9           | 8.8   | 0.105          | 0.135  |          |
|                | Body-worn              | GFSK | 10         | Rear          | 39    | 2441.0      | 9.9           | 8.8   | 0.050          | 0.064  | 47       |
|                |                        |      |            | Front         | 39    | 2441.0      | 9.9           | 8.8   | 0.032          | 0.041  |          |

## 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  $< 1.6$  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  $3$  (1-g or 10-g respectively) 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  $> 1.20$  or  $3$  (1-g or 10-g respectively).

| Frequency Band (MHz) | Air Interface        | RF Exposure Conditions | Test Position | Repeated SAR (Yes/No) | Highest Measured SAR (W/kg) | First Repeated      |                               | Second Repeated     |                               | Third Repeated      |
|----------------------|----------------------|------------------------|---------------|-----------------------|-----------------------------|---------------------|-------------------------------|---------------------|-------------------------------|---------------------|
|                      |                      |                        |               |                       |                             | Measured SAR (W/kg) | Largest to Smallest SAR Ratio | Measured SAR (W/kg) | Largest to Smallest SAR Ratio | Measured SAR (W/kg) |
| 700                  | LTE Band 12          | Hotspot                | Edge 4        | No                    | 0.479                       | N/A                 | N/A                           | N/A                 | N/A                           | N/A                 |
|                      | LTE Band 13          | Hotspot                | Edge 4        | No                    | 0.551                       | N/A                 | N/A                           | N/A                 | N/A                           | N/A                 |
| 850                  | GSM 850              | Body & Hotspot         | Front         | No                    | 0.780                       | N/A                 | N/A                           | N/A                 | N/A                           | N/A                 |
|                      | CDMA BC0             | Body & Hotspot         | Rear          | No                    | 0.697                       | N/A                 | N/A                           | N/A                 | N/A                           | N/A                 |
|                      | CDMA BC10            | Body & Hotspot         | Front         | No                    | 0.729                       | N/A                 | N/A                           | N/A                 | N/A                           | N/A                 |
|                      | WCDMA Band V         | Body & Hotspot         | Front         | No                    | 0.713                       | N/A                 | N/A                           | N/A                 | N/A                           | N/A                 |
|                      | LTE Band 26          | Hotspot                | Edge 4        | No                    | 0.633                       | N/A                 | N/A                           | N/A                 | N/A                           | N/A                 |
| 1900                 | GSM 1900             | Head                   | Right Touch   | No                    | 0.498                       | N/A                 | N/A                           | N/A                 | N/A                           | N/A                 |
|                      | CDMA BC1             | Body & Hotspot         | Front         | Yes                   | 1.280                       | 1.240               | 1.03                          | N/A                 | N/A                           | N/A                 |
|                      | WCDMA Band II        | Body & Hotspot         | Front         | No                    | 1.030                       | N/A                 | N/A                           | N/A                 | N/A                           | N/A                 |
|                      | LTE Band 2           | Body & Hotspot         | Front         | No                    | 1.140                       | N/A                 | N/A                           | N/A                 | N/A                           | N/A                 |
|                      | LTE Band 25          | Head                   | Right Touch   | No                    | 1.190                       | N/A                 | N/A                           | N/A                 | N/A                           | N/A                 |
| 1700                 | LTE Band 4           | Body & Hotspot         | Rear          | Yes                   | 1.160                       | 1.030               | 1.13                          | N/A                 | N/A                           | N/A                 |
|                      | WCDMA Band IV        | Body & Hotspot         | Front         | No                    | 1.050                       | N/A                 | N/A                           | N/A                 | N/A                           | N/A                 |
| 2400                 | Wi-Fi 802.11b/g/n/ac | Head                   | Right Touch   | No                    | 0.706                       | N/A                 | N/A                           | N/A                 | N/A                           | N/A                 |
|                      | BT                   | Head                   | Right Touch   | No                    | 0.141                       | N/A                 | N/A                           | N/A                 | N/A                           | N/A                 |
| 2600                 | LTE Band 7           | Body & Hotspot         | Front         | Yes                   | 0.829                       | 0.824               | 1.01                          | N/A                 | N/A                           | N/A                 |
|                      | LTE Band 41          | Body & Hotspot         | Front         | No                    | 0.366                       | N/A                 | N/A                           | N/A                 | N/A                           | N/A                 |
| 5300                 | Wi-Fi 802.11a/n/ac   | Head                   | Right Touch   | No                    | 0.653                       | N/A                 | N/A                           | N/A                 | N/A                           | N/A                 |
| 5500                 | Wi-Fi 802.11a/n/ac   | Head                   | Right Touch   | No                    | 0.483                       | N/A                 | N/A                           | N/A                 | N/A                           | N/A                 |
| 5800                 | Wi-Fi 802.11a/n/ac   | Head                   | Right Touch   | No                    | 0.618                       | N/A                 | N/A                           | N/A                 | 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  $> 1.20$  or  $3$  (1-g or 10-g respectively).

## 12. Simultaneous Transmission SAR Analysis

### Simultaneous Transmission Condition

| RF Exposure Condition  | Item | Capable Transmit Configurations |   |       |      |
|------------------------|------|---------------------------------|---|-------|------|
| Head<br>&<br>Body-worn | 1    | GSM(Voice)                      | + | DTS   |      |
|                        | 2    | GSM(Voice)                      | + | U-NII |      |
|                        | 3    | GSM(Voice)                      | + | BT    |      |
|                        | 4    | GSM(Voice)                      | + | U-NII | + BT |
|                        | 5    | GSM(GPRS/EDGE)                  | + | DTS   |      |
|                        | 6    | GSM(GPRS/EDGE)                  | + | U-NII |      |
|                        | 7    | GSM(GPRS/EDGE)                  | + | BT    |      |
|                        | 8    | GSM(GPRS/EDGE)                  | + | U-NII | + BT |
|                        | 9    | W-CDMA                          | + | DTS   |      |
|                        | 10   | W-CDMA                          | + | U-NII |      |
|                        | 11   | W-CDMA                          | + | BT    |      |
|                        | 12   | W-CDMA                          | + | U-NII | + BT |
|                        | 13   | CDMA                            | + | DTS   |      |
|                        | 14   | CDMA                            | + | U-NII |      |
|                        | 15   | CDMA                            | + | BT    |      |
|                        | 16   | CDMA                            | + | U-NII | + BT |
|                        | 17   | LTE                             | + | DTS   |      |
|                        | 18   | LTE                             | + | U-NII |      |
|                        | 19   | LTE                             | + | BT    |      |
|                        | 20   | LTE                             | + | U-NII | + BT |
| Hotspot & Wi-Fi Direct | 21   | GSM(GPRS/EDGE)                  | + | DTS   |      |
|                        | 22   | GSM(GPRS/EDGE)                  | + | U-NII |      |
|                        | 23   | W-CDMA                          | + | DTS   |      |
|                        | 24   | W-CDMA                          | + | U-NII |      |
|                        | 25   | CDMA                            | + | DTS   |      |
|                        | 26   | CDMA                            | + | U-NII |      |
|                        | 27   | LTE                             | + | DTS   |      |
|                        | 28   | LTE                             | + | U-NII |      |

Notes:

1. DTS and UNII-3 bands support Hotspot.
2. DTS, UNII-1, and UNII-3 bands support Wi-Fi Direct.
3. GPRS/EDGE, W-CDMA, CDMA and LTE support Hotspot.
4. VoIP is supported in GPRS/EDGE, W-CDMA, CDMA and LTE.
5. DTS Radio cannot transmit simultaneously with Bluetooth Radio.
6. U-NII Radio can transmit simultaneously with Bluetooth Radio.

### 12.1. Sum of the SAR for GSM850 & Wi-Fi & BT

| RF Exposure conditions | Test Position | ①<br>WWAN | ②<br>DTS | ③<br>U-NII | ④<br>BT | ①+②<br>WWAN + DTS |                 | ①+③<br>WWAN + U-NII |                 | ①+③+④<br>WWAN + U-NII + BT |                 |
|------------------------|---------------|-----------|----------|------------|---------|-------------------|-----------------|---------------------|-----------------|----------------------------|-----------------|
|                        |               |           |          |            |         | Σ 1-g SAR (mW/g)  | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)    | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)           | SPLSR (Yes/ No) |
| Head                   | Left Touch    | 0.610     | 0.787    | 0.769      | 0.079   | 1.396             | No              | 1.379               | No              | 1.458                      | No              |
|                        | Left Tilt     | 0.357     | 0.787    | 0.769      | 0.053   | 1.144             | No              | 1.126               | No              | 1.180                      | No              |
|                        | Right Touch   | 0.505     | 0.787    | 0.769      | 0.182   | 1.292             | No              | 1.274               | No              | 1.456                      | No              |
|                        | Right Tilt    | 0.342     | 0.659    | 0.484      | 0.135   | 1.001             | No              | 0.826               | No              | 0.962                      | No              |
| Body-worn & Hotspot    | Rear          | 0.684     | 0.315    | 0.365      | 0.064   | 0.999             | No              | 1.049               | No              | 1.113                      | No              |
|                        | Front         | 0.887     | 0.315    | 0.181      | 0.041   | 1.203             | No              | 1.068               | No              | 1.110                      | No              |
| Hotspot                | Edge 1        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |
|                        | Edge 2        | 0.389     |          |            |         | 0.389             | No              | 0.389               | No              |                            |                 |
|                        | Edge 3        | 0.613     |          |            |         | 0.613             | No              | 0.613               | No              |                            |                 |
|                        | Edge 4        | 0.738     | 0.315    | 0.368      |         | 1.054             | No              | 1.106               | No              |                            |                 |

### 12.2. Sum of the SAR for GSM1900 & Wi-Fi & BT

| RF Exposure conditions | Test Position | ①<br>WWAN | ②<br>DTS | ③<br>U-NII | ④<br>BT | ①+②<br>WWAN + DTS |                 | ①+③<br>WWAN + U-NII |                 | ①+③+④<br>WWAN + U-NII + BT |                 |
|------------------------|---------------|-----------|----------|------------|---------|-------------------|-----------------|---------------------|-----------------|----------------------------|-----------------|
|                        |               |           |          |            |         | Σ 1-g SAR (mW/g)  | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)    | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)           | SPLSR (Yes/ No) |
| Head                   | Left Touch    | 0.276     | 0.787    | 0.769      | 0.079   | 1.063             | No              | 1.045               | No              | 1.124                      | No              |
|                        | Left Tilt     | 0.147     | 0.787    | 0.769      | 0.053   | 0.933             | No              | 0.916               | No              | 0.969                      | No              |
|                        | Right Touch   | 0.518     | 0.787    | 0.769      | 0.182   | 1.305             | No              | 1.287               | No              | 1.469                      | No              |
|                        | Right Tilt    | 0.183     | 0.659    | 0.484      | 0.135   | 0.842             | No              | 0.667               | No              | 0.802                      | No              |
| Body-worn & Hotspot    | Rear          | 0.394     | 0.315    | 0.365      | 0.064   | 0.709             | No              | 0.759               | No              | 0.824                      | No              |
|                        | Front         | 0.501     | 0.315    | 0.181      | 0.041   | 0.817             | No              | 0.682               | No              | 0.723                      | No              |
| Hotspot                | Edge 1        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |
|                        | Edge 2        | 0.495     |          |            |         | 0.495             | No              | 0.495               | No              |                            |                 |
|                        | Edge 3        | 0.295     |          |            |         | 0.295             | No              | 0.295               | No              |                            |                 |
|                        | Edge 4        | 0.000     | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |

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

| RF Exposure conditions | Test Position | ①<br>WWAN | ②<br>DTS | ③<br>U-NII | ④<br>BT | ①+②<br>WWAN + DTS |                 | ①+③<br>WWAN + U-NII |                 | ①+③+④<br>WWAN + U-NII + BT |                 |
|------------------------|---------------|-----------|----------|------------|---------|-------------------|-----------------|---------------------|-----------------|----------------------------|-----------------|
|                        |               |           |          |            |         | Σ 1-g SAR (mW/g)  | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)    | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)           | SPLSR (Yes/ No) |
| Head                   | Left Touch    | 0.621     | 0.787    | 0.769      | 0.079   | 1.408             | No              | 1.390               | No              | 1.469                      | No              |
|                        | Left Tilt     | 0.255     | 0.787    | 0.769      | 0.053   | 1.041             | No              | 1.024               | No              | 1.077                      | No              |
|                        | Right Touch   | 1.018     | 0.787    | 0.769      | 0.182   | 1.805             | Yes             | 1.787               | Yes             | 1.969                      | Yes             |
|                        | Right Tilt    | 0.383     | 0.659    | 0.484      | 0.135   | 1.042             | No              | 0.867               | No              | 1.002                      | No              |
| Body-worn & Hotspot    | Rear          | 0.999     | 0.315    | 0.365      | 0.064   | 1.314             | No              | 1.364               | No              | 1.428                      | No              |
|                        | Front         | 1.054     | 0.315    | 0.181      | 0.041   | 1.369             | No              | 1.235               | No              | 1.276                      | No              |
| Hotspot                | Edge 1        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |
|                        | Edge 2        | 1.034     |          |            |         | 1.034             | No              | 1.034               | No              |                            |                 |
|                        | Edge 3        | 0.559     |          |            |         | 0.559             | No              | 0.559               | No              |                            |                 |
|                        | Edge 4        | 0.000     | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |

#### SAR to Peak Location Separation Ratio (SPLSR)

| Test Position | Worst-case combination |                   |            | Σ 1-g SAR (mW/g) |       | Calculated distance (mm) | SPLSR (≤ 0.04) | Volume Scan (Yes/ No) | Figure |
|---------------|------------------------|-------------------|------------|------------------|-------|--------------------------|----------------|-----------------------|--------|
|               | ①<br>WWAN              | ②<br>DTS          | ③<br>U-NII |                  |       |                          |                |                       |        |
| Right Touch   | 1.018                  | 0.787             |            | ① + ②            | 1.805 | 84.1                     | 0.03           | No                    | 1      |
|               | 1.018                  |                   | 0.769      | ① + ③            | 1.787 | 92.8                     | 0.03           | No                    | 2      |
| Test Position | Worst-case combination |                   |            | Σ 1-g SAR (mW/g) |       | Calculated distance (mm) | SPLSR (≤ 0.04) | Volume Scan (Yes/ No) | Figure |
|               | ①<br>WWAN              | ②+③<br>U-NII + BT |            |                  |       |                          |                |                       |        |
| Right Touch   | 1.018                  | 0.951             |            | ① + ② + ③        | 1.969 | 84.0                     | 0.03           | No                    | 3      |

**12.4. Sum of the SAR for WCDMA Band IV & Wi-Fi & BT**

| RF Exposure conditions | Test Position | ①<br>WWAN | ②<br>DTS | ③<br>U-NII | ④<br>BT | ①+②<br>WWAN + DTS |                 | ①+③<br>WWAN + U-NII |                 | ①+③+④<br>WWAN + U-NII + BT |                 |
|------------------------|---------------|-----------|----------|------------|---------|-------------------|-----------------|---------------------|-----------------|----------------------------|-----------------|
|                        |               |           |          |            |         | Σ 1g SAR (mW/g)   | SPLSR (Yes/ No) | Σ 1g SAR (mW/g)     | SPLSR (Yes/ No) | Σ 1g SAR (mW/g)            | SPLSR (Yes/ No) |
| Head                   | Left Touch    | 0.456     | 0.787    | 0.769      | 0.079   | 1.243             | No              | 1.225               | No              | 1.305                      | No              |
|                        | Left Tilt     | 0.308     | 0.787    | 0.769      | 0.053   | 1.095             | No              | 1.077               | No              | 1.130                      | No              |
|                        | Right Touch   | 1.026     | 0.787    | 0.769      | 0.182   | 1.813             | Yes             | 1.795               | Yes             | 1.977                      | Yes             |
|                        | Right Tilt    | 0.378     | 0.659    | 0.484      | 0.135   | 1.037             | No              | 0.862               | No              | 0.997                      | No              |
| Body-worn & Hotspot    | Rear          | 0.882     | 0.315    | 0.365      | 0.064   | 1.197             | No              | 1.247               | No              | 1.312                      | No              |
|                        | Front         | 1.067     | 0.315    | 0.181      | 0.041   | 1.382             | No              | 1.248               | No              | 1.289                      | No              |
| Hotspot                | Edge 1        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |
|                        | Edge 2        | 0.636     |          |            |         | 0.636             | No              | 0.636               | No              |                            |                 |
|                        | Edge 3        | 0.632     |          |            |         | 0.632             | No              | 0.632               | No              |                            |                 |
|                        | Edge 4        | 0.000     | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |

**SAR to Peak Location Separation Ratio (SPLSR)**

| Test Position | Worst-case combination |                   |            | Σ 1-g SAR (mW/g) |       | Calculated distance (mm) | SPLSR (≤ 0.04) | Volume Scan (Yes/ No) | Figure |
|---------------|------------------------|-------------------|------------|------------------|-------|--------------------------|----------------|-----------------------|--------|
|               | ①<br>WWAN              | ②<br>DTS          | ③<br>U-NII |                  |       |                          |                |                       |        |
| Right Touch   | 1.026                  | 0.787             |            | ① + ②            | 1.813 | 86.8                     | 0.03           | No                    | 4      |
|               | 1.026                  |                   | 0.769      | ① + ③            | 1.795 | 95.5                     | 0.03           | No                    | 5      |
| Test Position | Worst-case combination |                   |            | Σ 1-g SAR (mW/g) |       | Calculated distance (mm) | SPLSR (≤ 0.04) | Volume Scan (Yes/ No) | Figure |
|               | ①<br>WWAN              | ②+③<br>U-NII + BT |            |                  |       |                          |                |                       |        |
| Right Touch   | 1.026                  | 0.951             |            | ① + ② + ③        | 1.977 | 87.1                     | 0.03           | No                    | 6      |

**12.5. Sum of the SAR for WCDMA Band V & Wi-Fi & BT**

| RF Exposure conditions | Test Position | ①<br>WWAN | ②<br>DTS | ③<br>U-NII | ④<br>BT | ①+②<br>WWAN + DTS |                 | ①+③<br>WWAN + U-NII |                 | ①+③+④<br>WWAN + U-NII + BT |                 |
|------------------------|---------------|-----------|----------|------------|---------|-------------------|-----------------|---------------------|-----------------|----------------------------|-----------------|
|                        |               |           |          |            |         | Σ 1g SAR (mW/g)   | SPLSR (Yes/ No) | Σ 1g SAR (mW/g)     | SPLSR (Yes/ No) | Σ 1g SAR (mW/g)            | SPLSR (Yes/ No) |
| Head                   | Left Touch    | 0.573     | 0.787    | 0.769      | 0.079   | 1.359             | No              | 1.342               | No              | 1.421                      | No              |
|                        | Left Tilt     | 0.360     | 0.787    | 0.769      | 0.053   | 1.147             | No              | 1.129               | No              | 1.183                      | No              |
|                        | Right Touch   | 0.447     | 0.787    | 0.769      | 0.182   | 1.234             | No              | 1.216               | No              | 1.398                      | No              |
|                        | Right Tilt    | 0.307     | 0.659    | 0.484      | 0.135   | 0.966             | No              | 0.791               | No              | 0.926                      | No              |
| Body-worn & Hotspot    | Rear          | 0.714     | 0.315    | 0.365      | 0.064   | 1.029             | No              | 1.079               | No              | 1.144                      | No              |
|                        | Front         | 0.747     | 0.315    | 0.181      | 0.041   | 1.062             | No              | 0.928               | No              | 0.969                      | No              |
| Hotspot                | Edge 1        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |
|                        | Edge 2        | 0.291     |          |            |         | 0.291             | No              | 0.291               | No              |                            |                 |
|                        | Edge 3        | 0.539     |          |            |         | 0.539             | No              | 0.539               | No              |                            |                 |
|                        | Edge 4        | 0.723     | 0.315    | 0.368      |         | 1.038             | No              | 1.091               | No              |                            |                 |

**12.6. Sum of the SAR for CDMA BC0 & Wi-Fi & BT**

| RF Exposure conditions | Test Position | ①<br>WWAN | ②<br>DTS | ③<br>U-NII | ④<br>BT | ①+②<br>WWAN + DTS |                 | ①+③<br>WWAN + U-NII |                 | ①+③+④<br>WWAN + U-NII + BT |                 |
|------------------------|---------------|-----------|----------|------------|---------|-------------------|-----------------|---------------------|-----------------|----------------------------|-----------------|
|                        |               |           |          |            |         | Σ 1g SAR (mW/g)   | SPLSR (Yes/ No) | Σ 1g SAR (mW/g)     | SPLSR (Yes/ No) | Σ 1g SAR (mW/g)            | SPLSR (Yes/ No) |
| Head                   | Left Touch    | 0.539     | 0.787    | 0.769      | 0.079   | 1.326             | No              | 1.308               | No              | 1.387                      | No              |
|                        | Left Tilt     | 0.306     | 0.787    | 0.769      | 0.053   | 1.093             | No              | 1.075               | No              | 1.128                      | No              |
|                        | Right Touch   | 0.437     | 0.787    | 0.769      | 0.182   | 1.224             | No              | 1.206               | No              | 1.388                      | No              |
|                        | Right Tilt    | 0.278     | 0.659    | 0.484      | 0.135   | 0.937             | No              | 0.762               | No              | 0.898                      | No              |
| Body-worn & Hotspot    | Rear          | 0.713     | 0.315    | 0.365      | 0.064   | 1.029             | No              | 1.078               | No              | 1.143                      | No              |
|                        | Front         | 0.685     | 0.315    | 0.181      | 0.041   | 1.000             | No              | 0.865               | No              | 0.906                      | No              |
| Hotspot                | Edge 1        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |
|                        | Edge 2        | 0.451     |          |            |         | 0.451             | No              | 0.451               | No              |                            |                 |
|                        | Edge 3        | 0.550     |          |            |         | 0.550             | No              | 0.550               | No              |                            |                 |
|                        | Edge 4        | 0.702     | 0.315    | 0.368      |         | 1.017             | No              | 1.070               | No              |                            |                 |

**12.7. Sum of the SAR for CDMA BC1 & Wi-Fi & BT**

| RF Exposure conditions | Test Position | ①<br>WWAN | ②<br>DTS | ③<br>U-NII | ④<br>BT | ①+②<br>WWAN + DTS |                 | ①+③<br>WWAN + U-NII |                 | ①+③+④<br>WWAN + U-NII + BT |                 |
|------------------------|---------------|-----------|----------|------------|---------|-------------------|-----------------|---------------------|-----------------|----------------------------|-----------------|
|                        |               |           |          |            |         | Σ 1-g SAR (mW/g)  | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)    | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)           | SPLSR (Yes/ No) |
| Head                   | Left Touch    | 0.590     | 0.787    | 0.769      | 0.079   | 1.377             | No              | 1.359               | No              | 1.438                      | No              |
|                        | Left Tilt     | 0.283     | 0.787    | 0.769      | 0.053   | 1.070             | No              | 1.052               | No              | 1.106                      | No              |
|                        | Right Touch   | 1.251     | 0.787    | 0.769      | 0.182   | 2.038             | Yes             | 2.020               | Yes             | 2.202                      | Yes             |
|                        | Right Tilt    | 0.385     | 0.659    | 0.484      | 0.135   | 1.044             | No              | 0.869               | No              | 1.004                      | No              |
| Body-worn & Hotspot    | Rear          | 1.110     | 0.315    | 0.365      | 0.064   | 1.425             | No              | 1.475               | No              | 1.539                      | No              |
|                        | Front         | 1.280     | 0.315    | 0.181      | 0.041   | 1.595             | Yes             | 1.461               | No              | 1.502                      | No              |
| Hotspot                | Edge 1        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |
|                        | Edge 2        | 1.207     |          |            |         | 1.207             | No              | 1.207               | No              |                            |                 |
|                        | Edge 3        | 0.695     |          |            |         | 0.695             | No              | 0.695               | No              |                            |                 |
|                        | Edge 4        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |

**SAR to Peak Location Separation Ratio (SPLSR)**

| Test Position | Worst-case combination |                   |            | Σ 1-g SAR (mW/g) |       | Calculated distance (mm) | SPLSR (≤ 0.04) | Volume Scan (Yes/ No) | Figure |
|---------------|------------------------|-------------------|------------|------------------|-------|--------------------------|----------------|-----------------------|--------|
|               | ①<br>WWAN              | ②<br>DTS          | ③<br>U-NII |                  |       |                          |                |                       |        |
| Right Touch   | 1.251                  | 0.787             |            | ① + ②            | 2.038 | 79.5                     | 0.04           | No                    | 7      |
|               | 1.251                  |                   | 0.769      | ① + ③            | 2.020 | 88.3                     | 0.03           | No                    | 8      |
| Front         | 1.280                  | 0.315             |            | ① + ②            | 1.595 | 121                      | 0.02           | No                    | 9      |
| Test Position | Worst-case combination |                   |            | Σ 1-g SAR (mW/g) |       | Calculated distance (mm) | SPLSR (≤ 0.04) | Volume Scan (Yes/ No) | Figure |
|               | ①<br>WWAN              | ②+③<br>U-NII + BT |            |                  |       |                          |                |                       |        |
| Right Touch   | 1.251                  | 0.951             |            | ① + ② + ③        | 2.202 | 79.7                     | 0.04           | No                    | 10     |

**12.8. Sum of the SAR for CDMA BC10 & Wi-Fi & BT**

| RF Exposure conditions | Test Position | ①<br>WWAN | ②<br>DTS | ③<br>U-NII | ④<br>BT | ①+②<br>WWAN + DTS |                 | ①+③<br>WWAN + U-NII |                 | ①+③+④<br>WWAN + U-NII + BT |                 |
|------------------------|---------------|-----------|----------|------------|---------|-------------------|-----------------|---------------------|-----------------|----------------------------|-----------------|
|                        |               |           |          |            |         | Σ 1-g SAR (mW/g)  | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)    | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)           | SPLSR (Yes/ No) |
| Head                   | Left Touch    | 0.551     | 0.787    | 0.769      | 0.079   | 1.338             | No              | 1.320               | No              | 1.399                      | No              |
|                        | Left Tilt     | 0.307     | 0.787    | 0.769      | 0.053   | 1.094             | No              | 1.076               | No              | 1.129                      | No              |
|                        | Right Touch   | 0.438     | 0.787    | 0.769      | 0.182   | 1.224             | No              | 1.207               | No              | 1.388                      | No              |
|                        | Right Tilt    | 0.283     | 0.659    | 0.484      | 0.135   | 0.942             | No              | 0.767               | No              | 0.902                      | No              |
| Body-worn & Hotspot    | Rear          | 0.747     | 0.315    | 0.365      | 0.064   | 1.063             | No              | 1.112               | No              | 1.177                      | No              |
|                        | Front         | 0.755     | 0.315    | 0.181      | 0.041   | 1.070             | No              | 0.936               | No              | 0.977                      | No              |
| Hotspot                | Edge 1        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |
|                        | Edge 2        | 0.337     |          |            |         | 0.337             | No              | 0.337               | No              |                            |                 |
|                        | Edge 3        | 0.481     |          |            |         | 0.481             | No              | 0.481               | No              |                            |                 |
|                        | Edge 4        | 0.724     | 0.315    | 0.368      |         | 1.039             | No              | 1.092               | No              |                            |                 |

**12.9. Sum of the SAR for LTE Band 2 & Wi-Fi & BT**

| RF Exposure conditions | Test Position | ①<br>WWAN | ②<br>DTS | ③<br>U-NII | ④<br>BT | ①+②<br>WWAN + DTS |                 | ①+③<br>WWAN + U-NII |                 | ①+③+④<br>WWAN + U-NII + BT |                 |
|------------------------|---------------|-----------|----------|------------|---------|-------------------|-----------------|---------------------|-----------------|----------------------------|-----------------|
|                        |               |           |          |            |         | Σ 1-g SAR (mW/g)  | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)    | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)           | SPLSR (Yes/ No) |
| Head                   | Left Touch    | 0.621     | 0.787    | 0.769      | 0.079   | 1.408             | No              | 1.390               | No              | 1.469                      | No              |
|                        | Left Tilt     | 0.325     | 0.787    | 0.769      | 0.053   | 1.112             | No              | 1.094               | No              | 1.147                      | No              |
|                        | Right Touch   | 0.983     | 0.787    | 0.769      | 0.182   | 1.770             | Yes             | 1.752               | Yes             | 1.934                      | Yes             |
|                        | Right Tilt    | 0.354     | 0.659    | 0.484      | 0.135   | 1.013             | No              | 0.838               | No              | 0.973                      | No              |
| Body-worn & Hotspot    | Rear          | 0.744     | 0.315    | 0.365      | 0.064   | 1.059             | No              | 1.109               | No              | 1.173                      | No              |
|                        | Front         | 1.140     | 0.315    | 0.181      | 0.041   | 1.455             | No              | 1.321               | No              | 1.362                      | No              |
| Hotspot                | Edge 1        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |
|                        | Edge 2        | 0.764     |          |            |         | 0.764             | No              | 0.764               | No              |                            |                 |
|                        | Edge 3        | 0.593     |          |            |         | 0.593             | No              | 0.593               | No              |                            |                 |
|                        | Edge 4        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |

**SAR to Peak Location Separation Ratio (SPLSR)**

| Test Position | Worst-case combination |                   |            | Σ 1-g SAR (mW/g) |       | Calculated distance (mm) | SPLSR (≤ 0.04) | Volume Scan (Yes/ No) | Figure |
|---------------|------------------------|-------------------|------------|------------------|-------|--------------------------|----------------|-----------------------|--------|
|               | ①<br>WWAN              | ②<br>DTS          | ③<br>U-NII |                  |       |                          |                |                       |        |
| Right Touch   | 0.983                  | 0.787             |            | ① + ②            | 1.770 | 79.5                     | 0.03           | No                    | 11     |
|               | 0.983                  |                   | 0.769      | ① + ③            | 1.752 | 88.3                     | 0.03           | No                    | 12     |
| Test Position | Worst-case combination |                   |            | Σ 1-g SAR (mW/g) |       | Calculated distance (mm) | SPLSR (≤ 0.04) | Volume Scan (Yes/ No) | Figure |
|               | ①<br>WWAN              | ②+③<br>U-NII + BT |            |                  |       |                          |                |                       |        |
| Right Touch   | 0.983                  | 0.951             |            | ① + ② + ③        | 1.934 | 79.7                     | 0.03           | No                    | 13     |

**12.10. Sum of the SAR for LTE Band 4 & Wi-Fi & BT**

| RF Exposure conditions | Test Position | ①<br>WWAN | ②<br>DTS | ③<br>U-NII | ④<br>BT | ①+②<br>WWAN + DTS |                 | ①+③<br>WWAN + U-NII |                 | ①+③+④<br>WWAN + U-NII + BT |                 |
|------------------------|---------------|-----------|----------|------------|---------|-------------------|-----------------|---------------------|-----------------|----------------------------|-----------------|
|                        |               |           |          |            |         | Σ 1-g SAR (mW/g)  | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)    | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)           | SPLSR (Yes/ No) |
| Head                   | Left Touch    | 0.447     | 0.787    | 0.769      | 0.079   | 1.234             | No              | 1.216               | No              | 1.295                      | No              |
|                        | Left Tilt     | 0.315     | 0.787    | 0.769      | 0.053   | 1.102             | No              | 1.084               | No              | 1.137                      | No              |
|                        | Right Touch   | 0.977     | 0.787    | 0.769      | 0.182   | 1.764             | Yes             | 1.746               | Yes             | 1.928                      | Yes             |
|                        | Right Tilt    | 0.315     | 0.659    | 0.484      | 0.135   | 0.974             | No              | 0.799               | No              | 0.934                      | No              |
| Body-worn & Hotspot    | Rear          | 1.173     | 0.315    | 0.365      | 0.064   | 1.489             | No              | 1.538               | No              | 1.603                      | Yes             |
|                        | Front         | 1.113     | 0.315    | 0.181      | 0.041   | 1.428             | No              | 1.294               | No              | 1.335                      | No              |
| Hotspot                | Edge 1        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |
|                        | Edge 2        | 0.752     |          |            |         | 0.752             | No              | 0.752               | No              |                            |                 |
|                        | Edge 3        | 0.698     |          |            |         | 0.698             | No              | 0.698               | No              |                            |                 |
|                        | Edge 4        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |

**SAR to Peak Location Separation Ratio (SPLSR)**

| Test Position | Worst-case combination |                   |            | Σ 1-g SAR (mW/g) |       | Calculated distance (mm) | SPLSR (≤ 0.04) | Volume Scan (Yes/ No) | Figure |
|---------------|------------------------|-------------------|------------|------------------|-------|--------------------------|----------------|-----------------------|--------|
|               | ①<br>WWAN              | ②<br>DTS          | ③<br>U-NII |                  |       |                          |                |                       |        |
| Right Touch   | 0.977                  | 0.787             |            | ① + ②            | 1.764 | 87.4                     | 0.03           | No                    | 14     |
|               | 0.977                  |                   | 0.769      | ① + ③            | 1.746 | 96.1                     | 0.02           | No                    | 15     |
| Test Position | Worst-case combination |                   |            | Σ 1-g SAR (mW/g) |       | Calculated distance (mm) | SPLSR (≤ 0.04) | Volume Scan (Yes/ No) | Figure |
|               | ①<br>WWAN              | ②+③<br>U-NII + BT |            |                  |       |                          |                |                       |        |
| Right Touch   | 0.977                  | 0.951             |            | ① + ② + ③        | 1.928 | 87.6                     | 0.03           | No                    | 16     |
| Rear          | 1.173                  | 0.429             |            | ① + ② + ③        | 1.602 | 113.9                    | 0.02           | No                    | 17     |

**12.11. Sum of the SAR for LTE Band 5 & Wi-Fi & BT**

Covered by LTE Band 26 due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

**12.12. Sum of the SAR for LTE Band 7 & Wi-Fi & BT**

| RF Exposure conditions | Test Position | ①<br>WWAN | ②<br>DTS | ③<br>U-NII | ④<br>BT | ①+②<br>WWAN + DTS |                 | ①+③<br>WWAN + U-NII |                 | ①+③+④<br>WWAN + U-NII + BT |                 |
|------------------------|---------------|-----------|----------|------------|---------|-------------------|-----------------|---------------------|-----------------|----------------------------|-----------------|
|                        |               |           |          |            |         | Σ 1g SAR (mW/g)   | SPLSR (Yes/ No) | Σ 1g SAR (mW/g)     | SPLSR (Yes/ No) | Σ 1g SAR (mW/g)            | SPLSR (Yes/ No) |
| Head                   | Left Touch    | 0.622     | 0.787    | 0.769      | 0.079   | 1.409             | No              | 1.391               | No              | 1.470                      | No              |
|                        | Left Tilt     | 0.204     | 0.787    | 0.769      | 0.053   | 0.991             | No              | 0.973               | No              | 1.027                      | No              |
|                        | Right Touch   | 0.210     | 0.787    | 0.769      | 0.182   | 0.997             | No              | 0.979               | No              | 1.161                      | No              |
|                        | Right Tilt    | 0.194     | 0.659    | 0.484      | 0.135   | 0.853             | No              | 0.678               | No              | 0.813                      | No              |
| Body-worn & Hotspot    | Rear          | 0.521     | 0.315    | 0.365      | 0.064   | 0.837             | No              | 0.887               | No              | 0.951                      | No              |
|                        | Front         | 0.974     | 0.315    | 0.181      | 0.041   | 1.289             | No              | 1.155               | No              | 1.196                      | No              |
| Hotspot                | Edge 1        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |
|                        | Edge 2        | 0.056     |          |            |         | 0.056             | No              | 0.056               | No              |                            |                 |
|                        | Edge 3        | 0.540     |          |            |         | 0.540             | No              | 0.540               | No              |                            |                 |
|                        | Edge 4        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |

**12.13. Sum of the SAR for LTE Band 12 & Wi-Fi & BT**

| RF Exposure conditions | Test Position | ①<br>WWAN | ②<br>DTS | ③<br>U-NII | ④<br>BT | ①+②<br>WWAN + DTS |                 | ①+③<br>WWAN + U-NII |                 | ①+③+④<br>WWAN + U-NII + BT |                 |
|------------------------|---------------|-----------|----------|------------|---------|-------------------|-----------------|---------------------|-----------------|----------------------------|-----------------|
|                        |               |           |          |            |         | Σ 1g SAR (mW/g)   | SPLSR (Yes/ No) | Σ 1g SAR (mW/g)     | SPLSR (Yes/ No) | Σ 1g SAR (mW/g)            | SPLSR (Yes/ No) |
| Head                   | Left Touch    | 0.215     | 0.787    | 0.769      | 0.079   | 1.002             | No              | 0.984               | No              | 1.063                      | No              |
|                        | Left Tilt     | 0.122     | 0.787    | 0.769      | 0.053   | 0.909             | No              | 0.891               | No              | 0.944                      | No              |
|                        | Right Touch   | 0.179     | 0.787    | 0.769      | 0.182   | 0.966             | No              | 0.948               | No              | 1.130                      | No              |
|                        | Right Tilt    | 0.118     | 0.659    | 0.484      | 0.135   | 0.777             | No              | 0.602               | No              | 0.737                      | No              |
| Body-worn & Hotspot    | Rear          | 0.403     | 0.315    | 0.365      | 0.064   | 0.718             | No              | 0.768               | No              | 0.832                      | No              |
|                        | Front         | 0.301     | 0.315    | 0.181      | 0.041   | 0.616             | No              | 0.482               | No              | 0.523                      | No              |
| Hotspot                | Edge 1        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |
|                        | Edge 2        | 0.275     |          |            |         | 0.275             | No              | 0.275               | No              |                            |                 |
|                        | Edge 3        | 0.184     |          |            |         | 0.184             | No              | 0.184               | No              |                            |                 |
|                        | Edge 4        | 0.479     | 0.315    | 0.368      |         | 0.794             | No              | 0.847               | No              |                            |                 |

**12.14. Sum of the SAR for LTE Band 13 & Wi-Fi & BT**

| RF Exposure conditions | Test Position | ①<br>WWAN | ②<br>DTS | ③<br>U-NII | ④<br>BT | ①+②<br>WWAN + DTS |                 | ①+③<br>WWAN + U-NII |                 | ①+③+④<br>WWAN + U-NII + BT |                 |
|------------------------|---------------|-----------|----------|------------|---------|-------------------|-----------------|---------------------|-----------------|----------------------------|-----------------|
|                        |               |           |          |            |         | Σ 1g SAR (mW/g)   | SPLSR (Yes/ No) | Σ 1g SAR (mW/g)     | SPLSR (Yes/ No) | Σ 1g SAR (mW/g)            | SPLSR (Yes/ No) |
| Head                   | Left Touch    | 0.306     | 0.787    | 0.769      | 0.079   | 1.093             | No              | 1.075               | No              | 1.154                      | No              |
|                        | Left Tilt     | 0.174     | 0.787    | 0.769      | 0.053   | 0.961             | No              | 0.943               | No              | 0.996                      | No              |
|                        | Right Touch   | 0.224     | 0.787    | 0.769      | 0.182   | 1.011             | No              | 0.993               | No              | 1.175                      | No              |
|                        | Right Tilt    | 0.150     | 0.659    | 0.484      | 0.135   | 0.809             | No              | 0.634               | No              | 0.769                      | No              |
| Body-worn & Hotspot    | Rear          | 0.453     | 0.315    | 0.365      | 0.064   | 0.768             | No              | 0.818               | No              | 0.882                      | No              |
|                        | Front         | 0.368     | 0.315    | 0.181      | 0.041   | 0.683             | No              | 0.549               | No              | 0.590                      | No              |
| Hotspot                | Edge 1        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |
|                        | Edge 2        | 0.302     |          |            |         | 0.302             | No              | 0.302               | No              |                            |                 |
|                        | Edge 3        | 0.198     |          |            |         | 0.198             | No              | 0.198               | No              |                            |                 |
|                        | Edge 4        | 0.551     | 0.315    | 0.368      |         | 0.866             | No              | 0.919               | No              |                            |                 |

**12.15. Sum of the SAR for LTE Band 17 & Wi-Fi & BT**

Covered by LTE Band 12 due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

**12.16. Sum of the SAR for LTE Band 25 & Wi-Fi & BT**

| RF Exposure conditions | Test Position | ①<br>WWAN | ②<br>DTS | ③<br>U-NII | ④<br>BT | ①+②<br>WWAN + DTS |                 | ①+③<br>WWAN + U-NII |                 | ①+③+④<br>WWAN + U-NII + BT |                 |
|------------------------|---------------|-----------|----------|------------|---------|-------------------|-----------------|---------------------|-----------------|----------------------------|-----------------|
|                        |               |           |          |            |         | Σ 1-g SAR (mW/g)  | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)    | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)           | SPLSR (Yes/ No) |
| Head                   | Left Touch    | 0.623     | 0.787    | 0.769      | 0.079   | 1.410             | No              | 1.392               | No              | 1.471                      | No              |
|                        | Left Tilt     | 0.309     | 0.787    | 0.769      | 0.053   | 1.096             | No              | 1.078               | No              | 1.131                      | No              |
|                        | Right Touch   | 1.214     | 0.787    | 0.769      | 0.182   | 2.001             | Yes             | 1.983               | Yes             | 2.165                      | Yes             |
|                        | Right Tilt    | 0.321     | 0.659    | 0.484      | 0.135   | 0.980             | No              | 0.805               | No              | 0.940                      | No              |
| Body-worn & Hotspot    | Rear          | 1.058     | 0.315    | 0.365      | 0.064   | 1.374             | No              | 1.423               | No              | 1.488                      | No              |
|                        | Front         | 1.034     | 0.315    | 0.181      | 0.041   | 1.350             | No              | 1.215               | No              | 1.257                      | No              |
| Hotspot                | Edge 1        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |
|                        | Edge 2        | 1.089     |          |            |         | 1.089             | No              | 1.089               | No              |                            |                 |
|                        | Edge 3        | 0.662     |          |            |         | 0.662             | No              | 0.662               | No              |                            |                 |
|                        | Edge 4        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |

**SAR to Peak Location Separation Ratio (SPLSR)**

| Test Position | Worst-case combination |                    |                     | Σ 1-g SAR<br>(mW/g) |                                | Calculated<br>distance<br>(mm) | SPLSR<br>(≤ 0.04)           | Volume<br>Scan<br>(Yes/ No) | Figure |
|---------------|------------------------|--------------------|---------------------|---------------------|--------------------------------|--------------------------------|-----------------------------|-----------------------------|--------|
|               | ①<br>WWAN              | ②<br>DTS           | ③<br>U-NII          |                     |                                |                                |                             |                             |        |
| Right Touch   | 1.214                  | 0.787              |                     | ① + ②               | 2.001                          | 76.0                           | 0.04                        | No                          | 18     |
|               | 1.214                  |                    | 0.769               | ① + ③               | 1.983                          | 84.8                           | 0.03                        | No                          | 19     |
| Test Position | Worst-case combination |                    | Σ 1-g SAR<br>(mW/g) |                     | Calculated<br>distance<br>(mm) | SPLSR<br>(≤ 0.04)              | Volume<br>Scan<br>(Yes/ No) | Figure                      |        |
|               | ①<br>WWAN              | ② + ③<br>U-NII +BT |                     |                     |                                |                                |                             |                             |        |
| Right Touch   | 1.214                  | 0.951              | ① + ② + ③           | 2.165               | 76.4                           | 0.04                           | No                          | 20                          |        |

**12.17. Sum of the SAR for LTE Band 26 & Wi-Fi & BT**

| RF Exposure conditions | Test Position | ①<br>WWAN | ②<br>DTS | ③<br>U-NII | ④<br>BT | ①+②<br>WWAN + DTS |                 | ①+③<br>WWAN + U-NII |                 | ①+③+④<br>WWAN + U-NII + BT |                 |
|------------------------|---------------|-----------|----------|------------|---------|-------------------|-----------------|---------------------|-----------------|----------------------------|-----------------|
|                        |               |           |          |            |         | Σ 1-g SAR (mW/g)  | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)    | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)           | SPLSR (Yes/ No) |
| Head                   | Left Touch    | 0.510     | 0.787    | 0.769      | 0.079   | 1.296             | No              | 1.279               | No              | 1.358                      | No              |
|                        | Left Tilt     | 0.306     | 0.787    | 0.769      | 0.053   | 1.093             | No              | 1.075               | No              | 1.128                      | No              |
|                        | Right Touch   | 0.399     | 0.787    | 0.769      | 0.182   | 1.186             | No              | 1.168               | No              | 1.350                      | No              |
|                        | Right Tilt    | 0.282     | 0.659    | 0.484      | 0.135   | 0.941             | No              | 0.766               | No              | 0.902                      | No              |
| Body-worn & Hotspot    | Rear          | 0.647     | 0.315    | 0.365      | 0.064   | 0.962             | No              | 1.012               | No              | 1.076                      | No              |
|                        | Front         | 0.500     | 0.315    | 0.181      | 0.041   | 0.816             | No              | 0.681               | No              | 0.723                      | No              |
| Hotspot                | Edge 1        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |
|                        | Edge 2        | 0.292     |          |            |         | 0.292             | No              | 0.292               | No              |                            |                 |
|                        | Edge 3        | 0.479     |          |            |         | 0.479             | No              | 0.479               | No              |                            |                 |
|                        | Edge 4        | 0.648     | 0.315    | 0.368      |         | 0.963             | No              | 1.016               | No              |                            |                 |

**12.18. Sum of the SAR for LTE Band 41 & Wi-Fi & BT**

| RF Exposure conditions | Test Position | ①<br>WWAN | ②<br>DTS | ③<br>U-NII | ④<br>BT | ①+②<br>WWAN + DTS |                 | ①+③<br>WWAN + U-NII |                 | ①+③+④<br>WWAN + U-NII + BT |                 |
|------------------------|---------------|-----------|----------|------------|---------|-------------------|-----------------|---------------------|-----------------|----------------------------|-----------------|
|                        |               |           |          |            |         | Σ 1-g SAR (mW/g)  | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)    | SPLSR (Yes/ No) | Σ 1-g SAR (mW/g)           | SPLSR (Yes/ No) |
| Head                   | Left Touch    | 0.259     | 0.787    | 0.769      | 0.079   | 1.046             | No              | 1.028               | No              | 1.107                      | No              |
|                        | Left Tilt     | 0.068     | 0.787    | 0.769      | 0.053   | 0.855             | No              | 0.837               | No              | 0.891                      | No              |
|                        | Right Touch   | 0.100     | 0.787    | 0.769      | 0.182   | 0.886             | No              | 0.869               | No              | 1.050                      | No              |
|                        | Right Tilt    | 0.075     | 0.659    | 0.484      | 0.135   | 0.734             | No              | 0.559               | No              | 0.695                      | No              |
| Body-worn & Hotspot    | Rear          | 0.173     | 0.315    | 0.365      | 0.064   | 0.488             | No              | 0.538               | No              | 0.602                      | No              |
|                        | Front         | 0.366     | 0.315    | 0.181      | 0.041   | 0.681             | No              | 0.547               | No              | 0.588                      | No              |
| Hotspot                | Edge 1        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |
|                        | Edge 2        | 0.031     |          |            |         | 0.031             | No              | 0.031               | No              |                            |                 |
|                        | Edge 3        | 0.254     |          |            |         | 0.254             | No              | 0.254               | No              |                            |                 |
|                        | Edge 4        |           | 0.315    | 0.368      |         | 0.315             | No              | 0.368               | No              |                            |                 |

**Conclusion:**

Simultaneous transmission SAR measurement (Volume Scan) is not required because either the sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is ≤ 0.04 for all circumstances that require SPLSR calculation.

Figure (1)

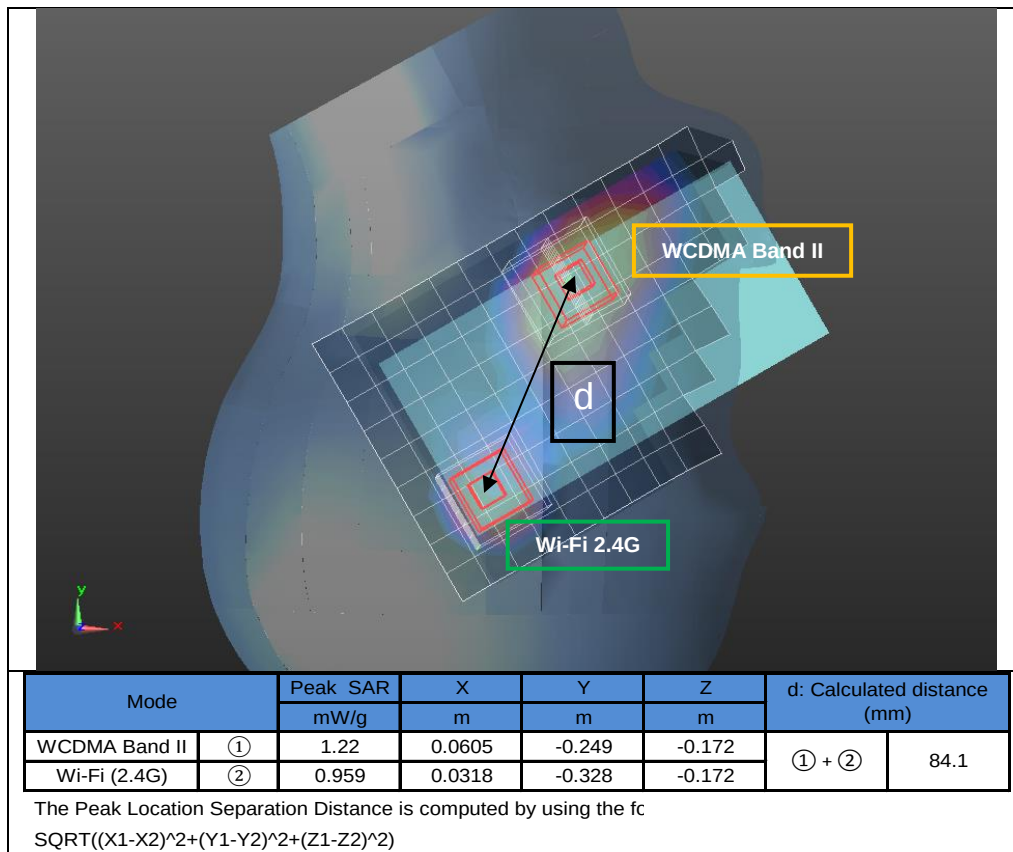


Figure (2)

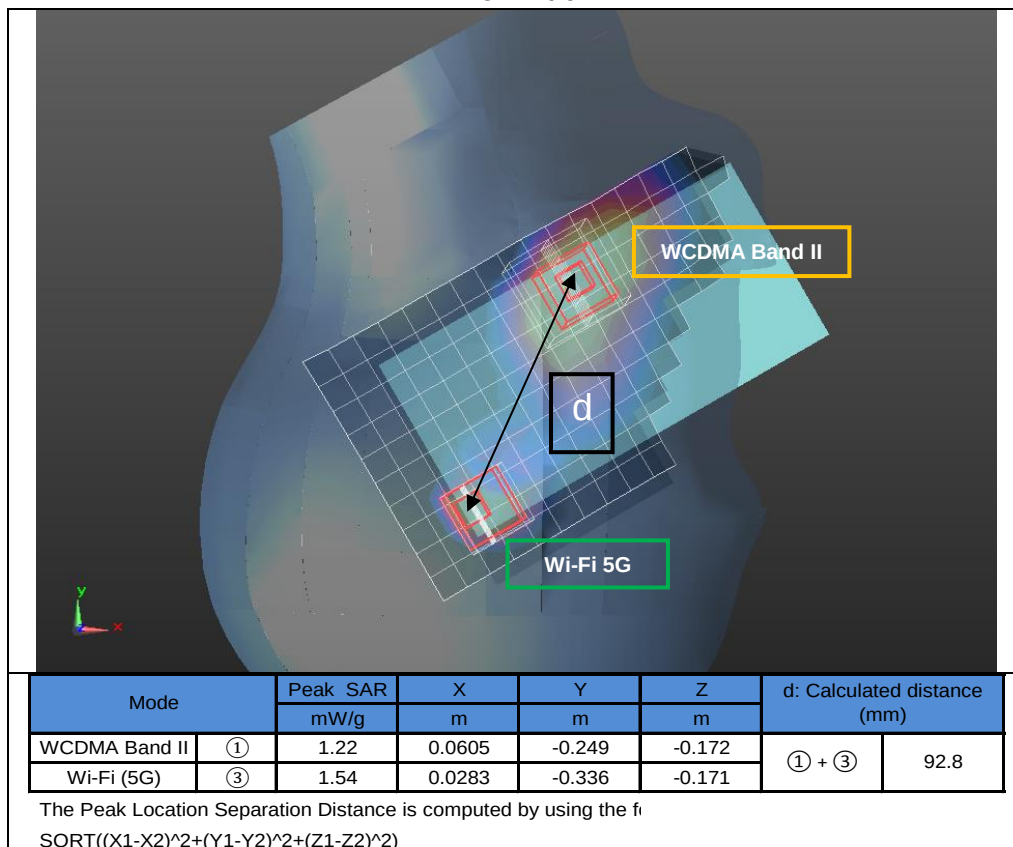


Figure (3)

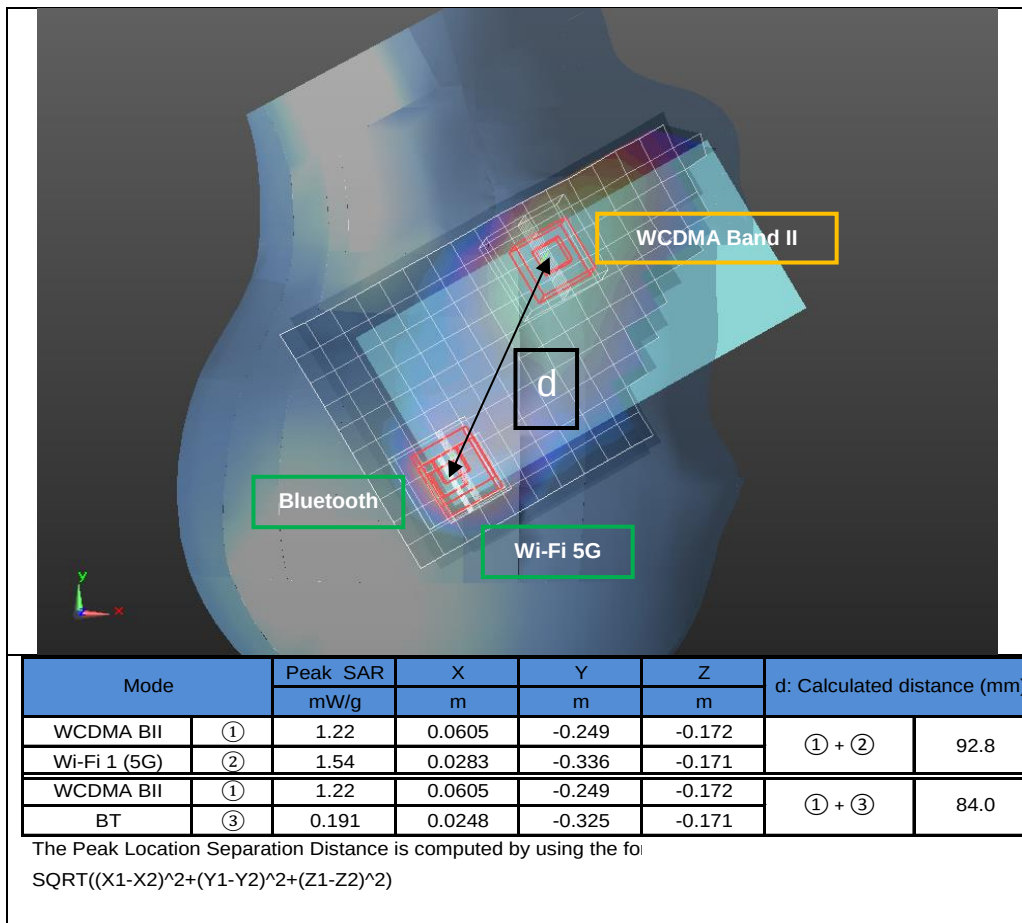


Figure (4)

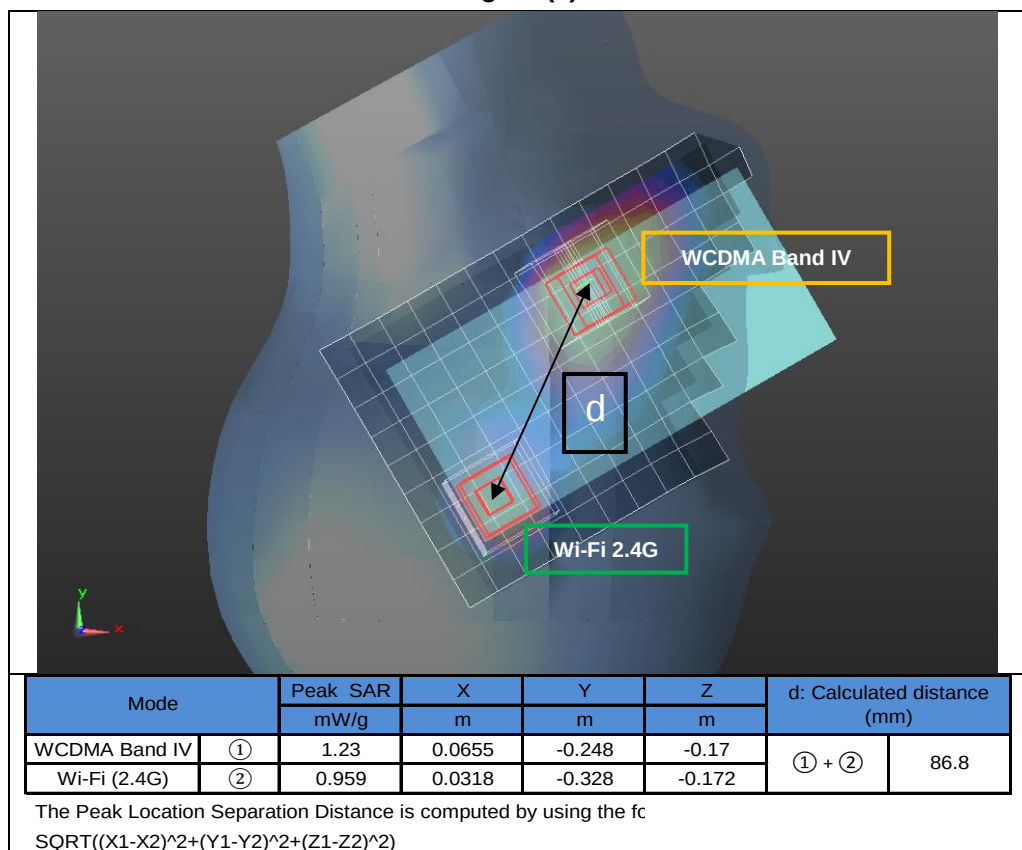


Figure (5)

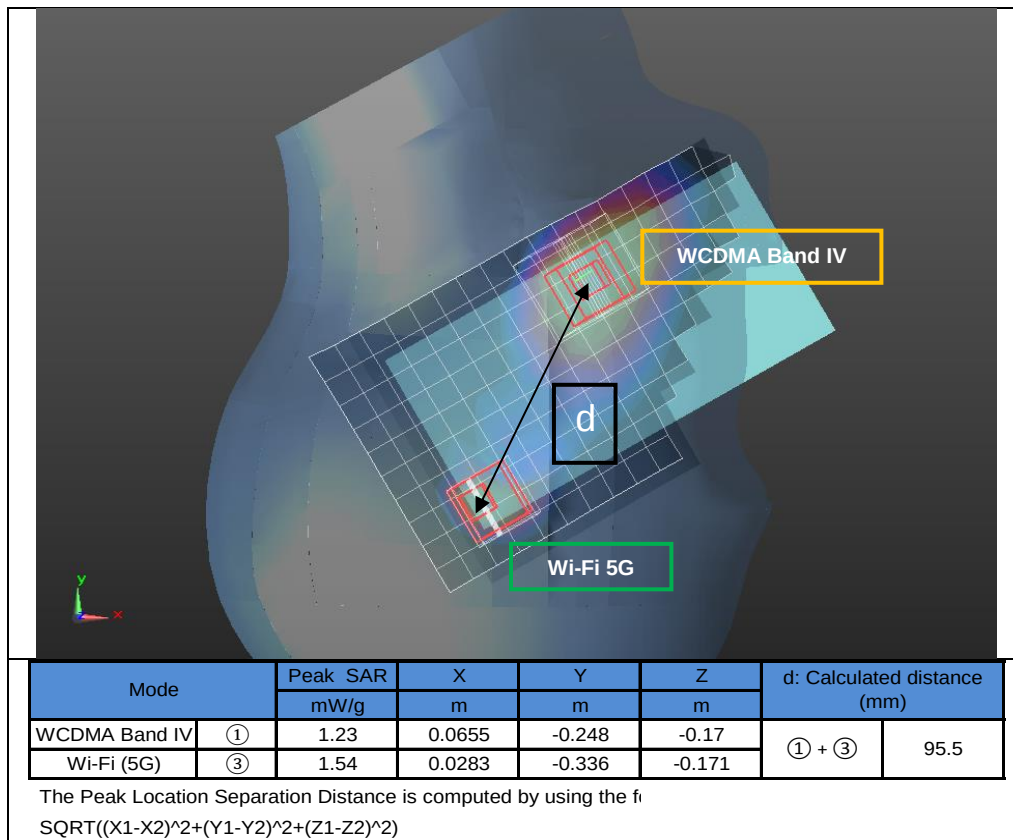


Figure (6)

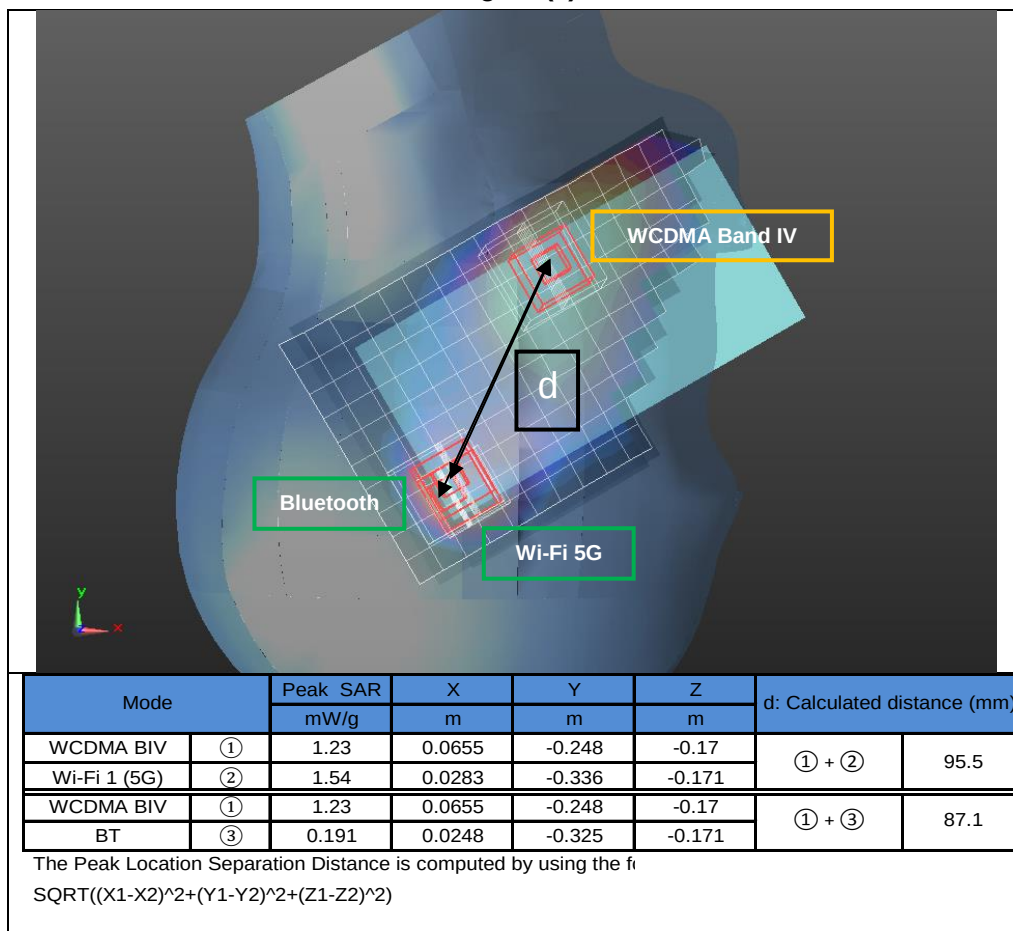


Figure (7)

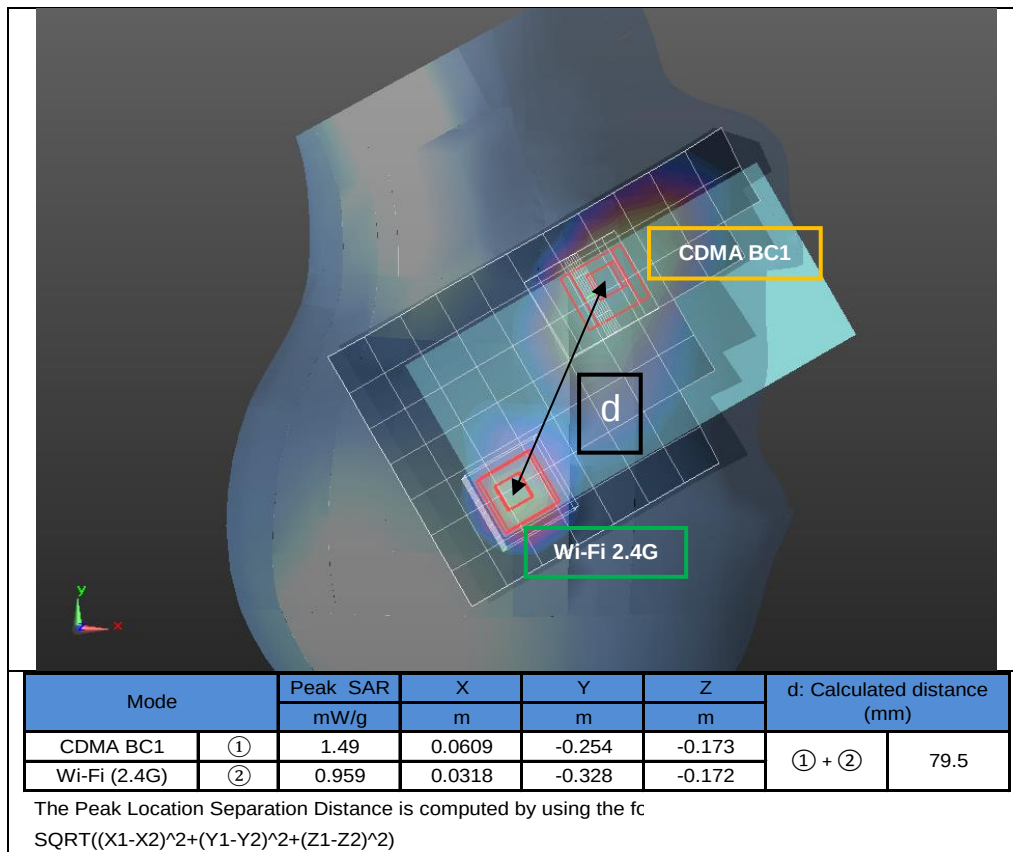


Figure (8)

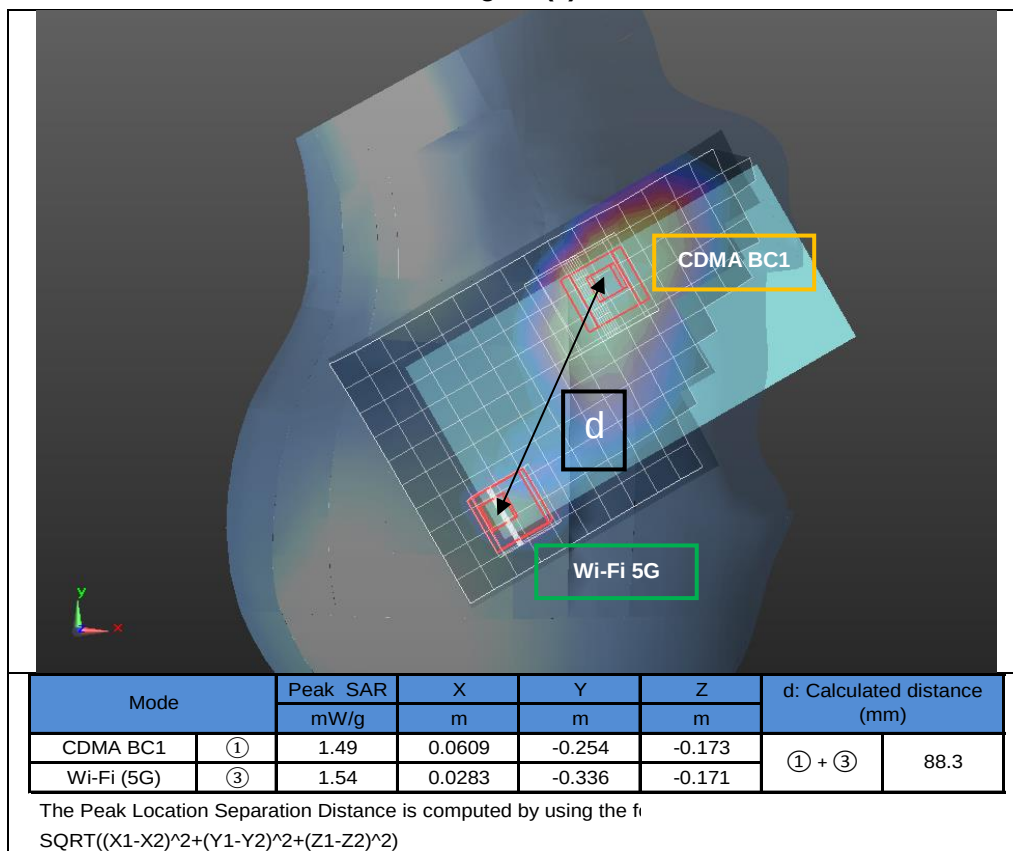


Figure (9)

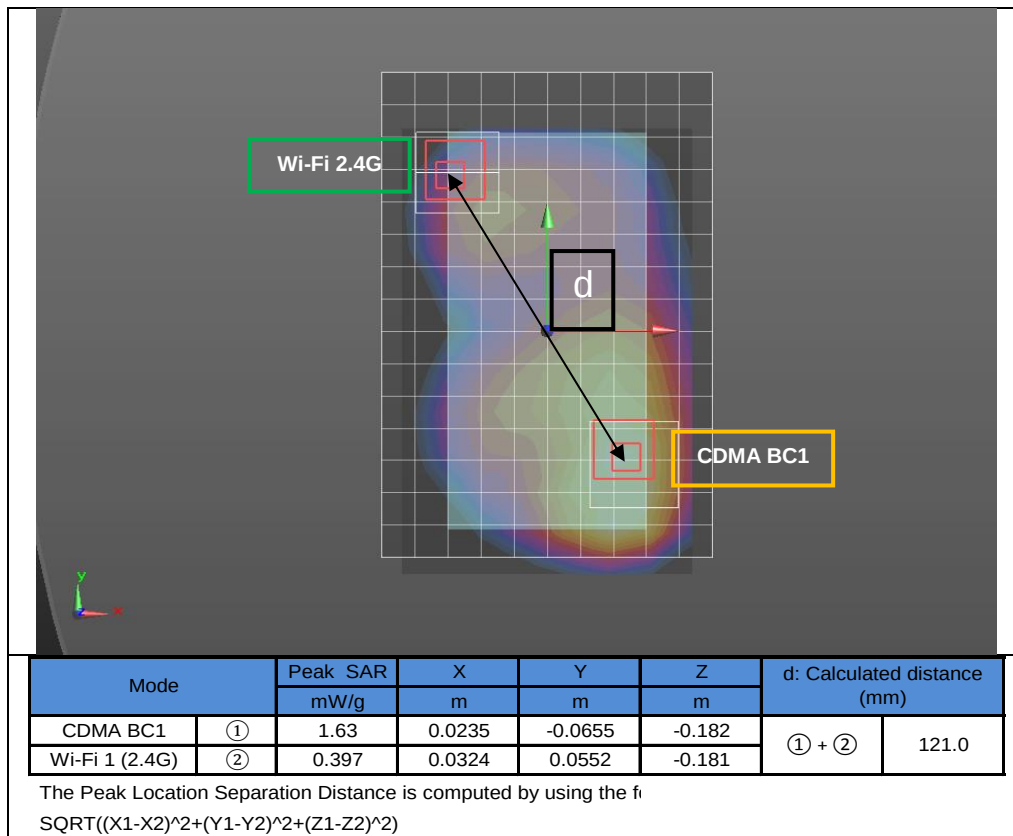


Figure (10)

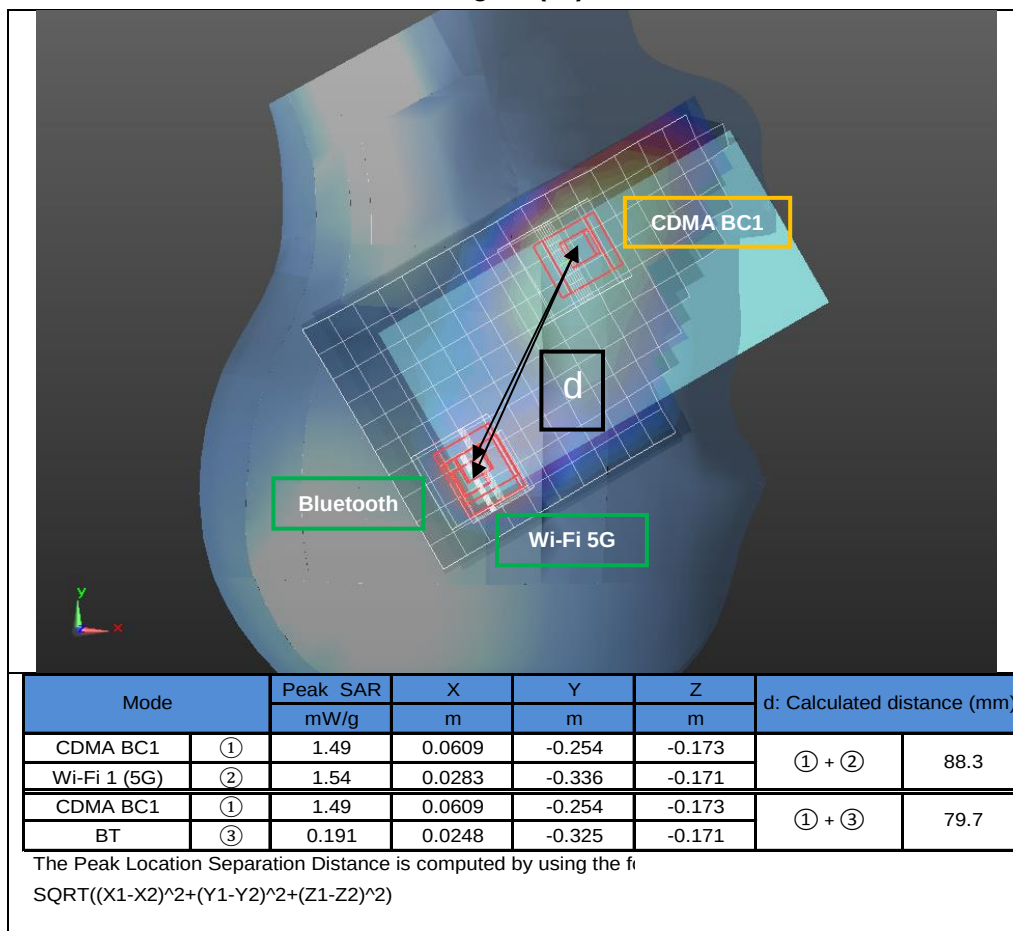


Figure (11)

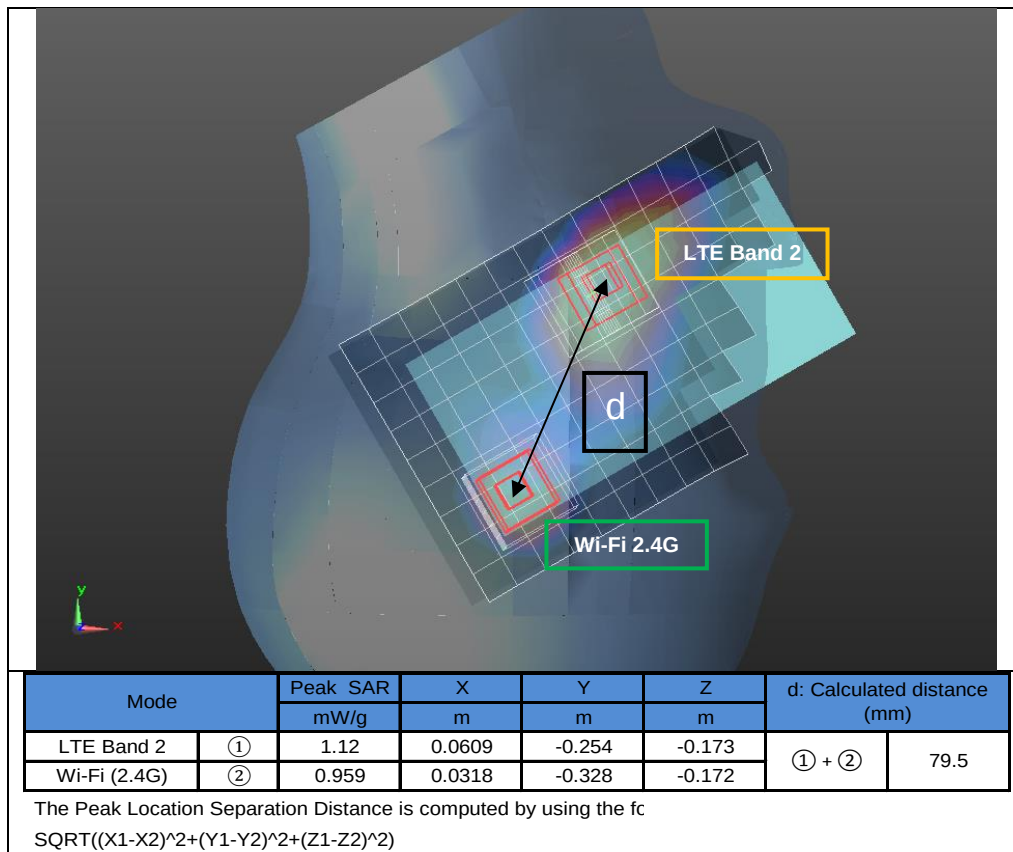


Figure (12)

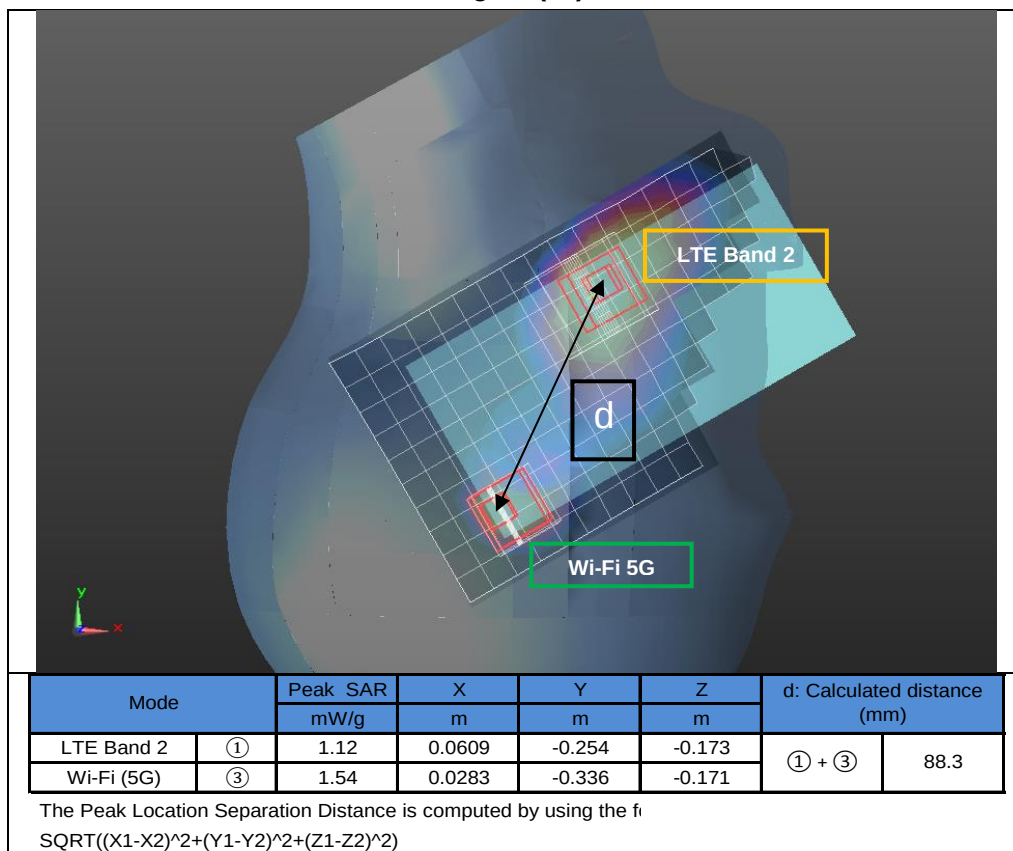


Figure (13)

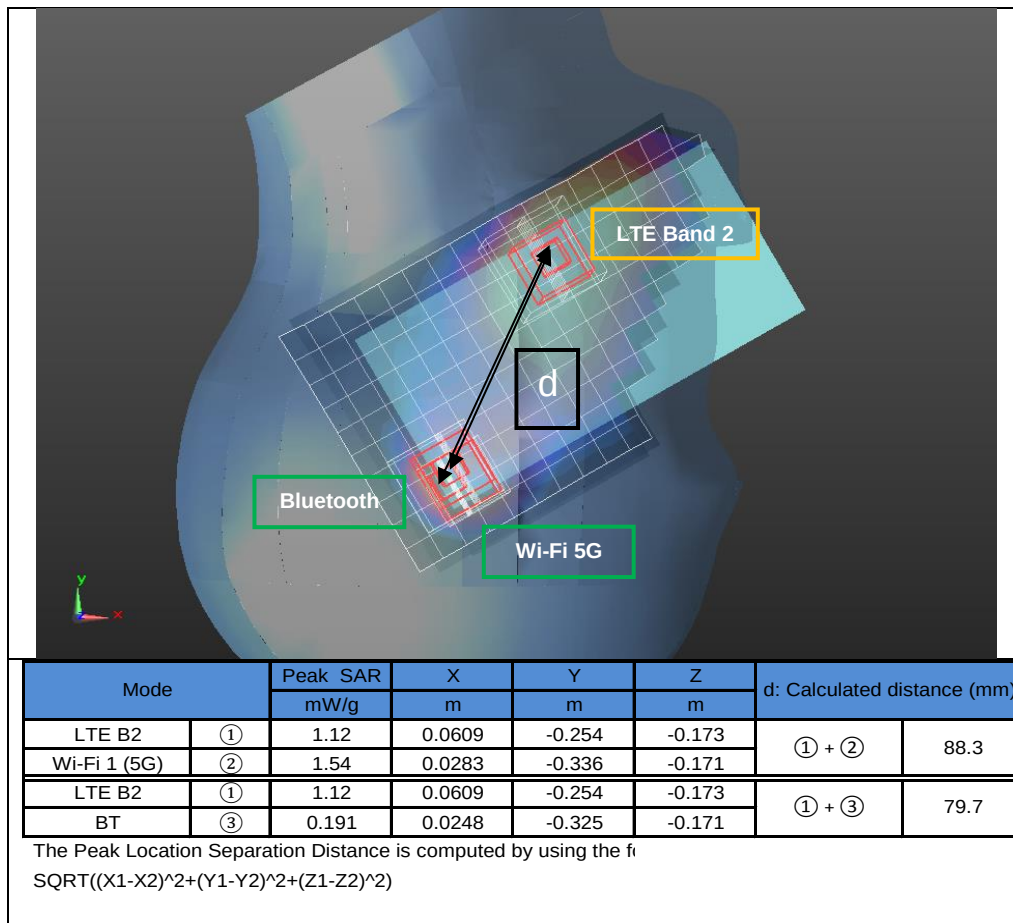


Figure (14)

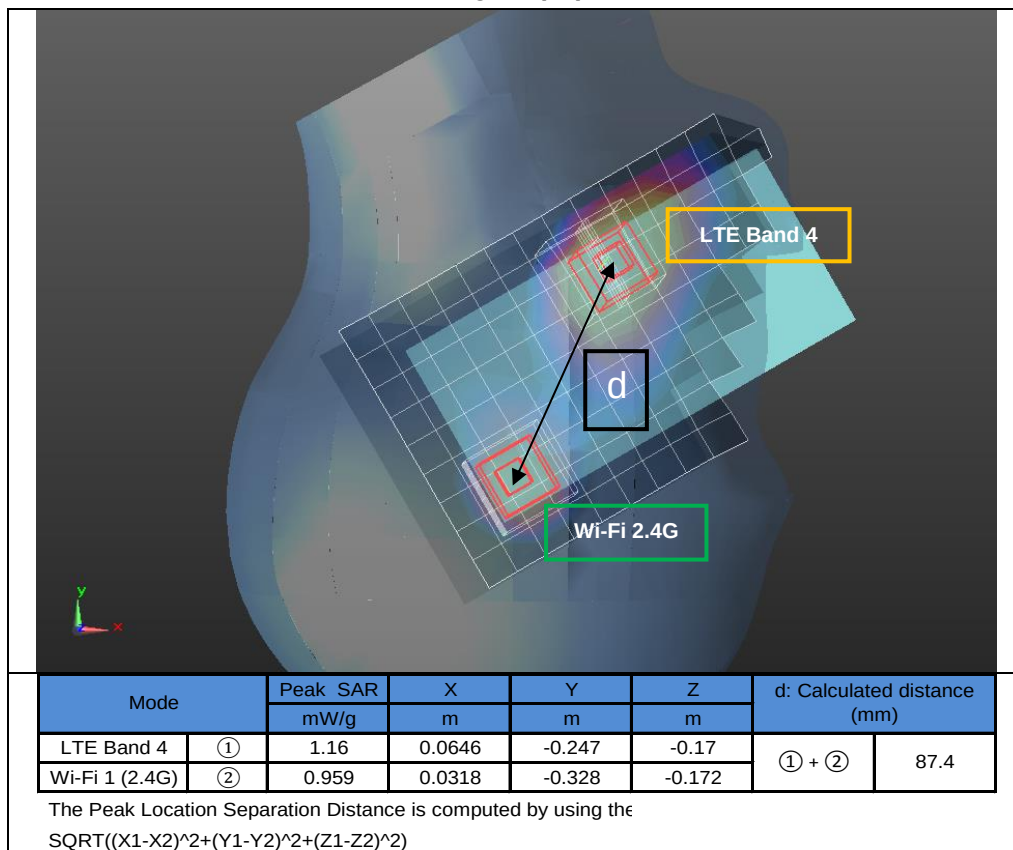


Figure (15)

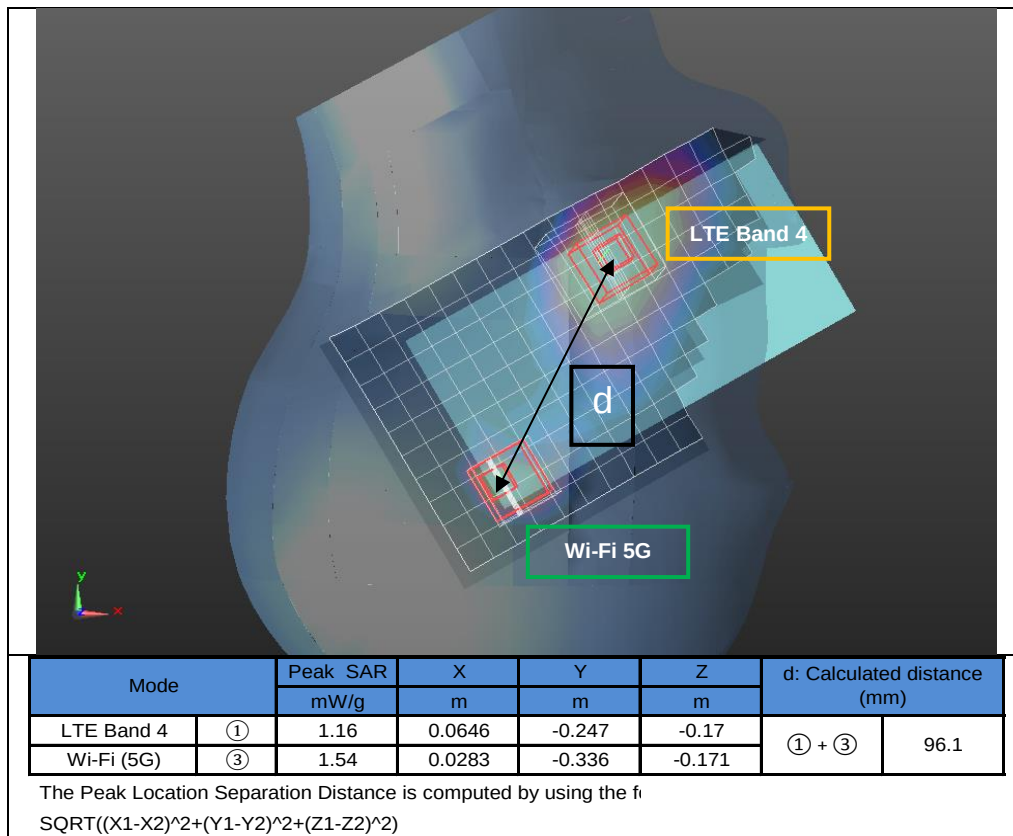


Figure (16)

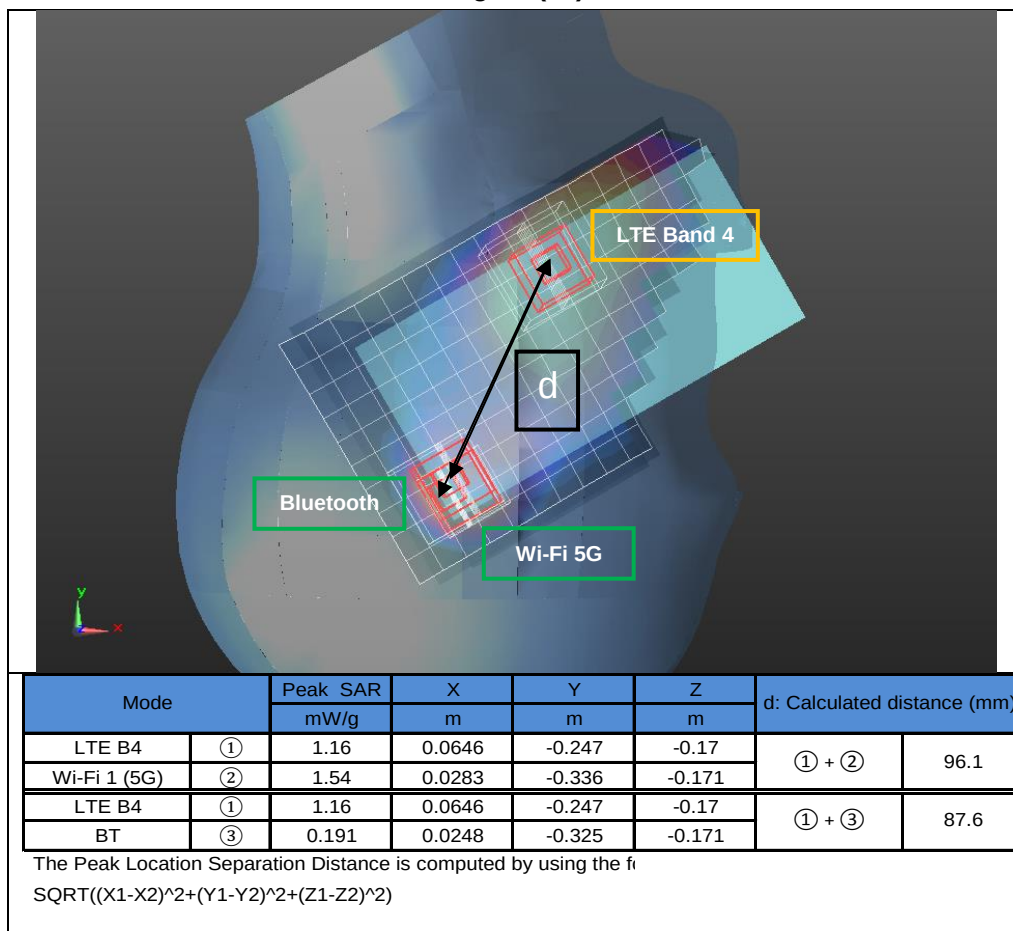


Figure (17)

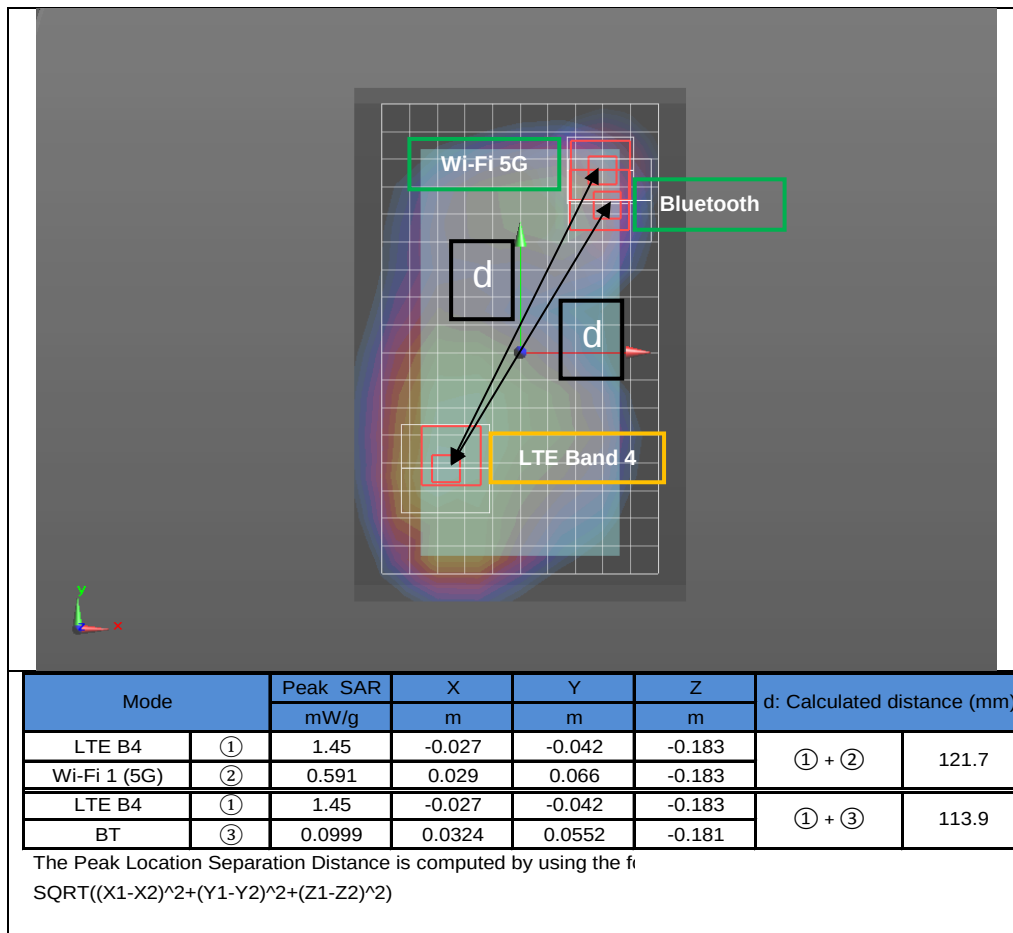


Figure (18)

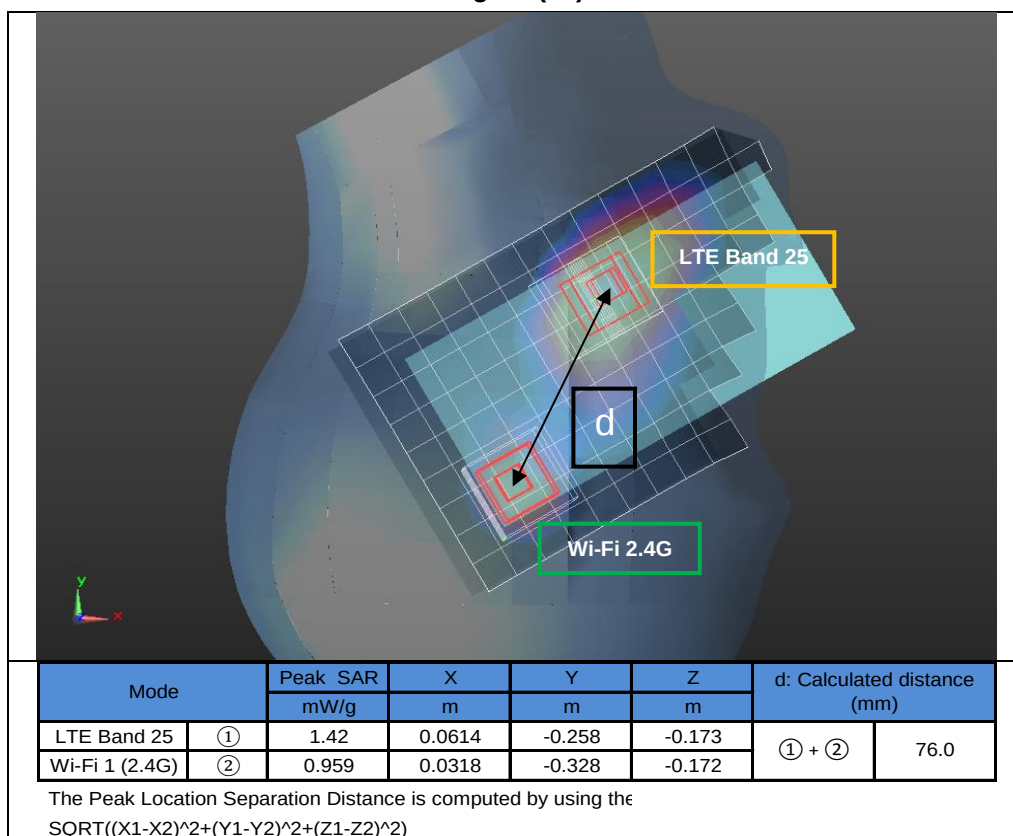


Figure (19)

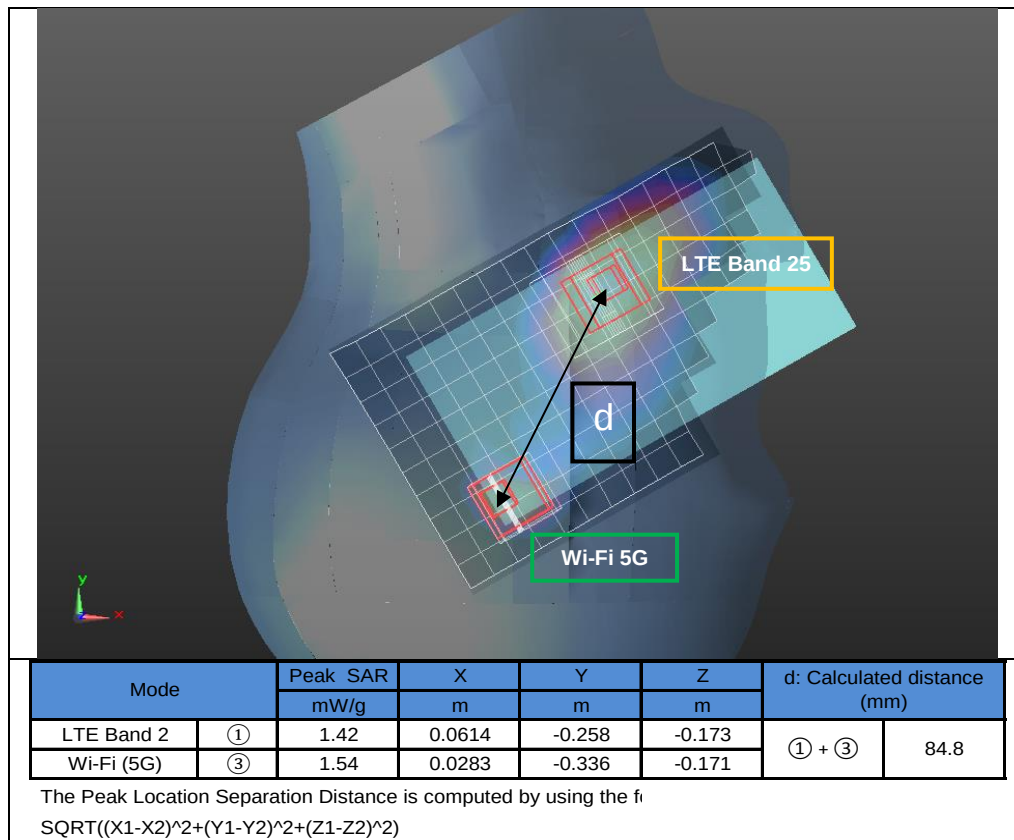
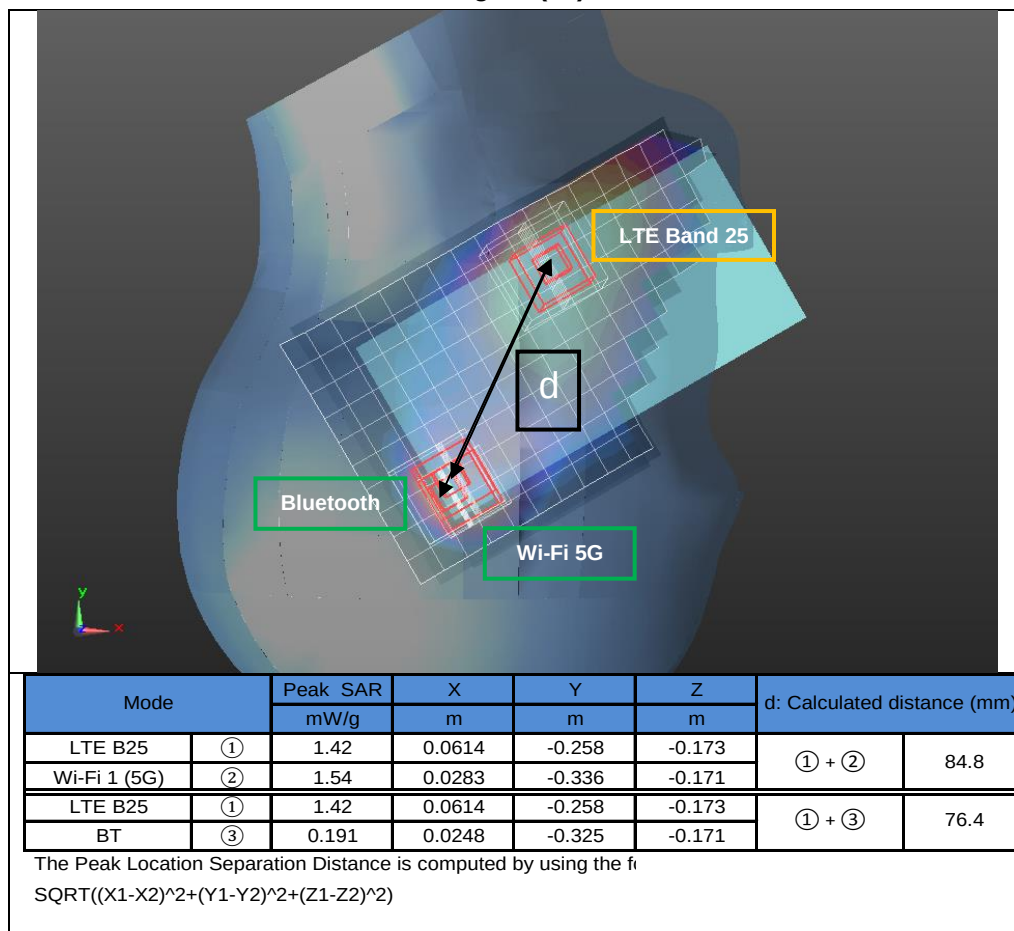


Figure (20)



## **Appendixes**

**Refer to separated files for the following appendixes.**

**A\_15I21235v0 SAR Photos & Ant. Locations**

**B\_15I21235v0 SAR System Check Plots**

**C\_15I21235v0 SAR Highest Test Plots**

**D\_15I21235v0 SAR Tissue Ingredients**

**E\_15I21235v0 SAR Probe Cal. Certificates**

**F\_15I21235v0 SAR Dipole Cal. Certificates**

**END OF REPORT**