



## **SAR EVALUATION REPORT**

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

*For*  
**GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac, GPS & NFC**

**FCC ID: PY7-32042D**

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*Prepared for*  
**SONY MOBILE COMMUNICATIONS INC.  
4-12-3 HIGASHI-SHINAGAWA  
SHINAGAWA-KU, TOKYO, 140-0002, JAPAN**

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



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**Revision History**

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|      |           |               |            |

## Table of Contents

|            |                                                                  |           |
|------------|------------------------------------------------------------------|-----------|
| <b>1.</b>  | <b>Attestation of Test Results .....</b>                         | <b>5</b>  |
| <b>2.</b>  | <b>Test Specification, Methods and Procedures.....</b>           | <b>6</b>  |
| <b>3.</b>  | <b>Facilities and Accreditation .....</b>                        | <b>6</b>  |
| <b>4.</b>  | <b>SAR Measurement System &amp; Test Equipment .....</b>         | <b>7</b>  |
| 4.1.       | <i>SAR Measurement System.....</i>                               | 7         |
| 4.2.       | <i>SAR Scan Procedures.....</i>                                  | 8         |
| 4.3.       | <i>Test Equipment.....</i>                                       | 10        |
| <b>5.</b>  | <b>Measurement Uncertainty.....</b>                              | <b>11</b> |
| <b>6.</b>  | <b>Device Under Test (DUT) Information .....</b>                 | <b>12</b> |
| 6.1.       | <i>DUT Description .....</i>                                     | 12        |
| 6.2.       | <i>Wireless Technologies.....</i>                                | 13        |
| 6.3.       | <i>Maximum Output Power from Tune-up Procedure .....</i>         | 14        |
| 6.4.       | <i>General LTE SAR Test and Reporting Considerations.....</i>    | 18        |
| 6.5.       | <i>LTE Carrier Aggregation .....</i>                             | 21        |
| 6.6.       | <i>LTE (TDD) Considerations.....</i>                             | 22        |
| <b>7.</b>  | <b>RF Exposure Conditions (Test Configurations) .....</b>        | <b>23</b> |
| <b>8.</b>  | <b>Dielectric Property Measurements &amp; System Check .....</b> | <b>24</b> |
| 8.1.       | <i>Dielectric Property Measurements .....</i>                    | 24        |
| 8.2.       | <i>System Check.....</i>                                         | 27        |
| <b>9.</b>  | <b>Conducted Output Power Measurements.....</b>                  | <b>29</b> |
| 9.1.       | <i>GSM .....</i>                                                 | 29        |
| 9.2.       | <i>W-CDMA .....</i>                                              | 32        |
| 9.3.       | <i>LTE.....</i>                                                  | 38        |
| 9.4.       | <i>LTE Carrier Aggregation .....</i>                             | 59        |
| 9.5.       | <i>Wi-Fi 2.4GHz (DTS Band) .....</i>                             | 60        |
| 9.6.       | <i>Wi-Fi 5GHz (U-NII Bands).....</i>                             | 61        |
| 9.7.       | <i>Bluetooth .....</i>                                           | 61        |
| <b>10.</b> | <b>Measured and Reported (Scaled) SAR Results.....</b>           | <b>62</b> |
| 10.1.      | <i>GSM850.....</i>                                               | 64        |
| 10.2.      | <i>GSM1900.....</i>                                              | 64        |
| 10.3.      | <i>W-CDMA Band II.....</i>                                       | 64        |
| 10.4.      | <i>W-CDMA Band IV .....</i>                                      | 65        |
| 10.5.      | <i>W-CDMA Band V .....</i>                                       | 65        |

|                   |                                                                    |           |
|-------------------|--------------------------------------------------------------------|-----------|
| 10.6.             | LTE Band 2 (20MHz Bandwidth) .....                                 | 66        |
| 10.7.             | LTE Band 4 (20MHz Bandwidth) .....                                 | 66        |
| 10.8.             | LTE Band 5 (10MHz Bandwidth) .....                                 | 66        |
| 10.9.             | LTE Band 7 (20MHz Bandwidth) .....                                 | 67        |
| 10.10.            | LTE Band 12 (10MHz Bandwidth) .....                                | 67        |
| 10.11.            | LTE Band 13 (10MHz Bandwidth) .....                                | 68        |
| 10.12.            | LTE Band 17 (10MHz Bandwidth) .....                                | 68        |
| 10.13.            | LTE Band 25 (20MHz Bandwidth) .....                                | 69        |
| 10.14.            | LTE Band 26 (15MHz Bandwidth) .....                                | 70        |
| 10.15.            | LTE Band 38 (20MHz Bandwidth) .....                                | 70        |
| 10.16.            | LTE Band 41 (20MHz Bandwidth) .....                                | 70        |
| 10.17.            | LTE Band 66 (20MHz Bandwidth) .....                                | 71        |
| 10.18.            | Wi-Fi (DTS Band).....                                              | 71        |
| 10.19.            | Wi-Fi (U-NII Band).....                                            | 72        |
| 10.20.            | Bluetooth.....                                                     | 72        |
| 10.21.            | Standalone SAR Test Exclusion Considerations & Estimated SAR ..... | 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 WWAN & Wi-Fi & BT.....                          | 75        |
| <b>Appendixes</b> | <b>.....</b>                                                       | <b>76</b> |
|                   | 11760905-S1V1 SAR_App A Setup Photos .....                         | 76        |
|                   | 11760905-S1V1 SAR_App B System Check Plots .....                   | 76        |
|                   | 11760905-S1V1 SAR_App C Highest Test Plots.....                    | 76        |
|                   | 11760905-S1V1 SAR_App D Tissue Ingredients.....                    | 76        |
|                   | 11760905-S1V1 SAR_App E Probe Cal. Certificates .....              | 76        |
|                   | 11760905-S1V1 SAR_App F Dipole Cal. Certificates .....             | 76        |

## 1. Attestation of Test Results

|                                               |                                                                                   |       |       |       |
|-----------------------------------------------|-----------------------------------------------------------------------------------|-------|-------|-------|
| Applicant Name                                | SONY MOBILE COMMUNICATIONS INC.                                                   |       |       |       |
| FCC ID                                        | PY7-32042D                                                                        |       |       |       |
| Applicable Standards                          | FCC 47 CFR § 2.1093<br>Published RF exposure KDB procedures<br>IEEE Std 1528-2013 |       |       |       |
| Exposure Category                             | SAR Limits (W/Kg)<br>Peak spatial-average(1g of tissue)                           |       |       |       |
| General population /<br>Uncontrolled exposure | 1.6                                                                               |       |       |       |
| RF Exposure Conditions                        | Equipment Class - Highest Reported SAR (W/kg)                                     |       |       |       |
|                                               | PCE                                                                               | DTS   | NII   | DSS   |
| Head                                          | 0.967                                                                             | 0.339 | 0.287 | N/A   |
| Body-worn                                     | 0.775                                                                             | 0.039 | 0.168 | N/A   |
| Hotspot/Wi-Fi Direct                          | 0.979                                                                             | 0.093 | N/A   | N/A   |
| Simultaneous TX                               | 1.593                                                                             | 1.593 | 1.593 | 1.143 |
| Date Tested                                   | 7/11/2017 to 7/26/2017                                                            |       |       |       |
| Test Results                                  | Pass                                                                              |       |       |       |

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.

**Note:** 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.

|                                                                                                                |                                                                                                      |
|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Approved & Released By:<br> | Prepared By:<br> |
| David Weaver<br>Program Manager<br>UL Verification Services Inc.                                               | Coltyce Sanders<br>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 v02r02
- 447498 D01 General RF Exposure Guidance v06
- 447498 D03 Supplement C Cross-Reference v01
- 648474 D04 Handset SAR v01r03
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- 865664 D02 RF Exposure Reporting v01r02
- 941225 D01 3G SAR Procedures v03r01
- 941225 D05 SAR for LTE Devices v02r05
- 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02
- 941225 D06 Hotspot Mode v02r01
- 941225 D07 UMPC Mini Tablet v01r02

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

- [TCB workshop](#) October, 2014; Page 36, RF Exposure Procedures Update (Overlapping LTE Bands)
- [TCB workshop](#) October, 2014; Page 37, RF Exposure Procedures Update (Other LTE Considerations)
- [TCB workshop](#) October, 2015; Page 6, RF Exposure Procedures (KDB 941225 D05A)
- [TCB workshop](#) April, 2016; Page 13, RF Exposure Procedures (LTE Carrier Aggregation)

## 3. Facilities and Accreditation

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

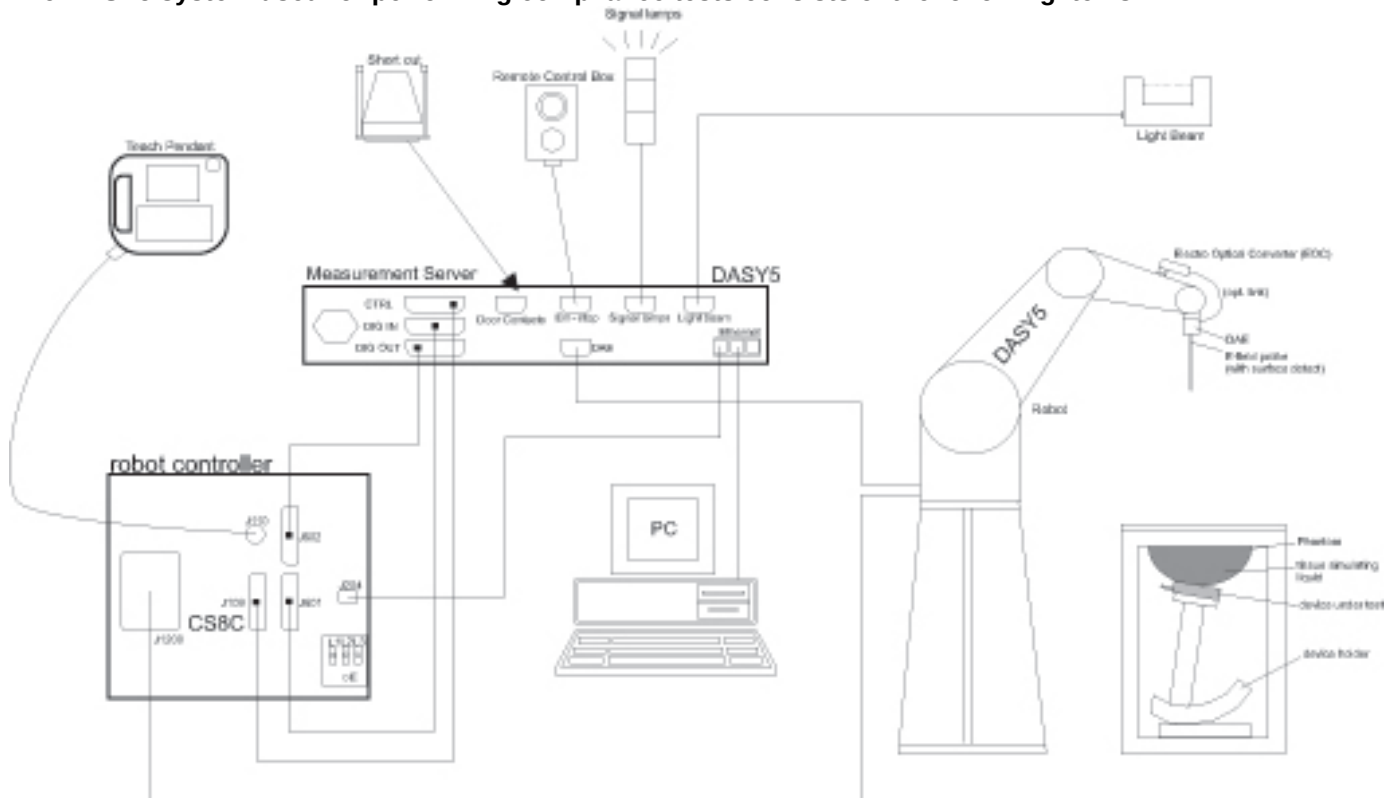
| 47173 Benicia Street | 47266 Benicia Street |
|----------------------|----------------------|
| SAR Lab A            | SAR Lab 1            |
| SAR Lab B            | SAR Lab 2            |
| SAR Lab C            | SAR Lab 3            |
| SAR Lab D            | SAR Lab 4            |
| SAR Lab E            |                      |
| SAR Lab 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 <u>reported</u> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is $\leq 1.4$ W/kg, $\leq 8$ mm, $\leq 7$ mm and $\leq 5$ mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz. |                                           |                                                                                             |                                                      |                                                                               |

**Step 4: Power drift measurement**

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

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

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

### 4.3. Test Equipment

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

#### Dielectric Property Measurements

| Name of Equipment            | Manufacturer    | Type/Model     | Serial No.    | Cal. Due Date |
|------------------------------|-----------------|----------------|---------------|---------------|
| S-Parameter Network Analyzer | Agilent         | 8753ES         | MY40000980    | 5/10/2018     |
| Dielectric Probe kit         | SPEAG           | DAK-3.5        | 1103          | 2/17/2018     |
| Shorting block               | SPEAG           | DAK-3.5 Short  | SM DAK 200 BA | 11/8/2017     |
| Thermometer                  | Control Company | Traceable 4242 | 122529162     | 11/11/2017    |
| Thermometer (Liquid Check)*  | Traceable       | 15557603       | 160643192     | 7/25/2018     |
| Thermometer (Liquid Check)   | Traceable       | 15557603       | 170024401     | 12/23/2017    |

#### System Check

| Name of Equipment            | Manufacturer    | Type/Model             | Serial No. | Cal. Due Date |
|------------------------------|-----------------|------------------------|------------|---------------|
| Synthesized Signal Generator | Agilent         | N5181A                 | MY50140610 | 5/31/2018     |
| Power Meter                  | Agilent         | N1912A                 | MY50001018 | 10/11/2017    |
| Power Sensor                 | Agilent         | N1921A                 | MY52260009 | 1/5/2018      |
| Power Sensor                 | Agilent         | N1921A                 | MY53020038 | 4/13/2018     |
| Amplifier                    | MITEQ           | AMF-4D-00400600-50-30P | 1795093    | N/A           |
| Bi-directional coupler       | Werlatone, Inc. | C8060-102              | 2149       | N/A           |
| DC Power Supply              | BK Precision    | 1611                   | 215-02292  | N/A           |

#### Lab Equipment

| Name of Equipment                         | Manufacturer | Type/Model | Serial No. | Cal. Due Date |
|-------------------------------------------|--------------|------------|------------|---------------|
| E-Field Probe (SAR Lab 1)                 | SPEAG        | EX3DV4     | 3751       | 11/17/2017    |
| E-Field Probe (SAR Lab 2)                 | SPEAG        | EX3DV4     | 3991       | 5/30/2018     |
| E-Field Probe (SAR Lab 3)                 | SPEAG        | EX3DV4     | 3871       | 8/25/2017     |
| E-Field Probe (SAR Lab 4)                 | SPEAG        | EX3DV4     | 3990       | 3/15/2018     |
| Data Acquisition Electronics (SAR Lab 1)  | SPEAG        | DAE4       | 1259       | 1/20/2018     |
| Data Acquisition Electronics (SAR Lab 2)  | SPEAG        | DAE4       | 1433       | 3/8/2018      |
| Data Acquisition Electronics (SAR Lab 3)  | SPEAG        | DAE4       | 1343       | 8/15/2017     |
| Data Acquisition Electronics (SAR Lab 4)* | SPEAG        | DAE4       | 1380       | 7/25/2017     |
| Data Acquisition Electronics (SAR Lab 4)  | SPEAG        | DAE4       | 1258       | 5/12/2018     |
| System Validation Dipole                  | SPEAG        | D750V3     | 1024       | 5/12/2018     |
| System Validation Dipole                  | SPEAG        | D835V2     | 4d142      | 9/22/2017     |
| System Validation Dipole                  | SPEAG        | D1750V2    | 1053       | 8/16/2017     |
| System Validation Dipole                  | SPEAG        | D1900V2    | 5d043      | 11/9/2017     |
| System Validation Dipole                  | SPEAG        | D1900V2    | 5d163      | 9/19/2017     |
| System Validation Dipole                  | SPEAG        | D2450V2    | 899        | 3/10/2018     |
| System Validation Dipole                  | SPEAG        | D2600V2    | 1036       | 3/10/2018     |
| System Validation Dipole                  | SPEAG        | D5GHzV2    | 1138       | 9/22/2017     |
| Thermometer (SAR Lab 1)                   | EXTECH       | 445703     | 80666      | 4/13/2018     |
| Thermometer (SAR Lab 2)*                  | Traceable    | 15557603   | 160643193  | 7/25/2017     |
| Thermometer (SAR Lab 2)                   | EXTECH       | 445703     | CCS-237    | 7/13/2018     |
| Thermometer (SAR Lab 3)*                  | Traceable    | 15557603   | 160643167  | 7/25/2017     |
| Thermometer (SAR Lab 3)                   | EXTECH       | 445703     | CCS-234    | 6/14/2018     |
| Thermometer (SAR Lab 4)                   | Traceable    | 15557603   | 170024385  | 12/23/2017    |

#### Note(s):

\*Equipment not used past calibration due date.

**Other**

| Name of Equipment      | Manufacturer | Type/Model | Serial No. | Cal. Due Date |
|------------------------|--------------|------------|------------|---------------|
| Power Meter            | Agilent      | N1912A     | MY50001018 | 10/11/2017    |
| Power Sensor           | Agilent      | N1921A     | MY52260009 | 1/5/2018      |
| Power Sensor           | Agilent      | N1921A     | MY53020038 | 4/13/2018     |
| Base Station Simulator | R & S        | CMW500     | 135390     | 4/27/2018     |
| Base Station Simulator | R & S        | CMW500     | 137876     | 8/5/2017      |
| Base Station Simulator | Agilent      | E5515C     | GB47050526 | 2/21/2018     |

## 5. Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg, the 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): 129.4 mm x 64.4 mm<br>Overall Diagonal: 143.46 mm<br>Display Diagonal: 115.65 mm                                                                                                                                   |                     |              |
| Back Cover                | <input checked="" type="checkbox"/> The Back Cover is not removable.                                                                                                                                                                         |                     |              |
| Battery Options           | <input checked="" type="checkbox"/> The rechargeable battery is not user accessible.                                                                                                                                                         |                     |              |
| 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 type="checkbox"/> Mobile Hotspot (Wi-Fi 5 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 type="checkbox"/> Wi-Fi Direct (Wi-Fi 5 GHz)                                            |                     |              |
| Test sample information   | <b>S/N</b>                                                                                                                                                                                                                                   | <b>Technology</b>   | <b>Notes</b> |
|                           | BH9000SR7W                                                                                                                                                                                                                                   | GSM/UMTS            | Conducted    |
|                           | BH9000UL7W                                                                                                                                                                                                                                   | GSM/UMTS Tethering  | Conducted    |
|                           | BH9000SN7W                                                                                                                                                                                                                                   | LTE LB/MB           | Conducted    |
|                           | BH9000HL7S                                                                                                                                                                                                                                   | LTE LB/MB Tethering | Conducted    |
|                           | BH9000TD7W                                                                                                                                                                                                                                   | LTE HB Max Power    | Conducted    |
|                           | BH9000TU7W                                                                                                                                                                                                                                   | WLAN 2.4G/BT        | Conducted    |
|                           | BH9000VC7W                                                                                                                                                                                                                                   | WLAN 5G             | Conducted    |
|                           | BH90007Q85                                                                                                                                                                                                                                   | GSM/UMTS #1         | Radiated     |
|                           | BH9000NQ85                                                                                                                                                                                                                                   | GSM/UMTS #2         | Radiated     |
|                           | BH9000N485                                                                                                                                                                                                                                   | GSM/UMTS Tethering  | Radiated     |
|                           | BH90005185                                                                                                                                                                                                                                   | LTE LB/MB #1        | Radiated     |
|                           | BH9000JC85                                                                                                                                                                                                                                   | LTE LB/MB #2        | Radiated     |
|                           | BH9000J185                                                                                                                                                                                                                                   | LTE LB/MB Tethering | Radiated     |
|                           | BH9000A885                                                                                                                                                                                                                                   | LTE HB/UHB #1       | Radiated     |
|                           | BH9000HC85                                                                                                                                                                                                                                   | LTE HB/UHB #2       | Radiated     |
|                           | BH90009E85                                                                                                                                                                                                                                   | WLAN 2.4G/BT #1     | Radiated     |
|                           | BH9000HG85                                                                                                                                                                                                                                   | WLAN 2.4G/BT #2     | Radiated     |

**DUT Description (continue)**

|                         | S/N        | Technology | Notes    |
|-------------------------|------------|------------|----------|
| Test sample information | BH9000TM85 | WLAN 5G #1 | Radiated |
|                         | BH9000HE85 | WLAN 5G #2 | Radiated |
|                         | BH9000AS85 | WLAN 5G #3 | Radiated |
|                         | BH9000XN85 | WLAN 5G #4 | Radiated |
| Hardware Version        | A          |            |          |
| Software Version        | 1.30       |            |          |

**6.2. Wireless Technologies**

| Wireless technologies | Frequency bands                                                                                                                                                                                       | Operating mode                                                                                                                                                                                     |                                                                                                                                                                                                                                                  | Duty Cycle used for SAR testing                                                              |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| GSM                   | 850<br>1900                                                                                                                                                                                           | Voice (GMSK)<br>GPRS (GMSK)<br>EGPRS (8PSK)                                                                                                                                                        | GPRS Multi-Slot Class:<br><input type="checkbox"/> Class 8 - 1 Up, 4 Down<br><input type="checkbox"/> Class 10 - 2 Up, 4 Down<br><input type="checkbox"/> Class 12 - 4 Up, 4 Down<br><input checked="" type="checkbox"/> Class 33 - 4 Up, 5 Down | GSM Voice: 12.5%<br>(E)GPRS: 1 Slot: 12.5%<br>2 Slots: 25%<br>3 Slots: 37.5%<br>4 Slots: 50% |
|                       | Does this device support DTM (Dual Transfer Mode)? <input checked="" type="checkbox"/> Yes <input 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 38<br>TDD Band 41<br>FDD Band 66 | QPSK<br>16QAM<br>64QAM<br><input checked="" type="checkbox"/> Rel. 11 Carrier Aggregation 3CC (1 Uplink and 3 Downlinks). (Carrier Aggregation is only supported for downlink and not for uplink.) |                                                                                                                                                                                                                                                  | 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)                                                                                                                                                               |                                                                                                                                                                                                                                                  | 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                                                   |                                                                                                                                                                                                    |                                                                                                                                                                                                                                                  |                                                                                              |
|                       | Does this device support Band gap channel(s)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                                                     |                                                                                                                                                                                                    |                                                                                                                                                                                                                                                  |                                                                                              |
| Bluetooth             | 2.4 GHz                                                                                                                                                                                               | Version 5.0 LE                                                                                                                                                                                     |                                                                                                                                                                                                                                                  | N/A                                                                                          |

### 6.3. Maximum Output Power from Tune-up Procedure

#### 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.

| RF Air interface | Mode       | Time Slots | Max. RF Output Power (dBm) |           | Reduce RF Output Power (dBm) |           |
|------------------|------------|------------|----------------------------|-----------|------------------------------|-----------|
|                  |            |            | Tune-up Limit              | Frame Pwr | Tune-up Limit                | Frame Pwr |
| GSM 850          | Voice/GPRS | 1          | 33.2                       | 24.17     |                              |           |
|                  | GPRS       | 2          | 30.2                       | 24.18     |                              |           |
|                  | GPRS       | 3          | 28.5                       | 24.24     |                              |           |
|                  | GPRS       | 4          | 27.2                       | 24.19     |                              |           |
|                  | EGPRS      | 1          | 28.0                       | 18.97     |                              |           |
|                  | EGPRS      | 2          | 26.5                       | 20.48     |                              |           |
|                  | EGPRS      | 3          | 24.5                       | 20.24     |                              |           |
|                  | EGPRS      | 4          | 23.6                       | 20.59     |                              |           |
| GSM1900          | Voice/GPRS | 1          | 30.7                       | 21.67     | 29.2                         | 20.17     |
|                  | GPRS       | 2          | 29.2                       | 23.18     | 26.2                         | 20.18     |
|                  | GPRS       | 3          | 27.2                       | 22.94     | 24.2                         | 19.94     |
|                  | GPRS       | 4          | 26.2                       | 23.19     | 23.2                         | 20.19     |
|                  | EGPRS      | 1          | 27.0                       | 17.97     |                              |           |
|                  | EGPRS      | 2          | 25.4                       | 19.38     |                              |           |
|                  | EGPRS      | 3          | 23.3                       | 19.04     |                              |           |
|                  | EGPRS      | 4          | 22.5                       | 19.49     |                              |           |

| RF Air interface | Mode          | Time Slots | Max. RF Output Power (dBm) |           |               |           | Reduce RF Output Power (dBm) |           |               |           |
|------------------|---------------|------------|----------------------------|-----------|---------------|-----------|------------------------------|-----------|---------------|-----------|
|                  |               |            | CS                         |           | PS            |           | CS                           |           | PS            |           |
|                  |               |            | Tune-up Limit              | Frame Pwr | Tune-up Limit | Frame Pwr | Tune-up Limit                | Frame Pwr | Tune-up Limit | Frame Pwr |
| DTM<br>GSM 850   | Voice + GPRS  | 1          | 33.2                       | 24.2      |               |           |                              |           |               |           |
|                  | Voice + GPRS  | 2          | 30.2                       | 24.2      | 30.2          | 24.2      |                              |           |               |           |
|                  | Voice + GPRS  | 3          | 28.5                       | 24.2      | 28.5          | 24.2      |                              |           |               |           |
|                  | Voice + EGPRS | 1          | 33.2                       | 24.2      |               |           |                              |           |               |           |
|                  | Voice + EGPRS | 2          | 30.2                       | 24.2      | 26.5          | 20.5      |                              |           |               |           |
|                  | Voice + EGPRS | 3          | 28.5                       | 24.2      | 24.5          | 20.2      |                              |           |               |           |
| DTM<br>GSM 1900  | Voice + GPRS  | 1          | 30.7                       | 21.7      |               |           | 29.2                         | 20.2      |               |           |
|                  | Voice + GPRS  | 2          | 29.2                       | 23.2      | 29.2          | 23.2      | 26.2                         | 20.2      | 26.2          | 20.2      |
|                  | Voice + GPRS  | 3          | 27.2                       | 22.9      | 27.2          | 22.9      | 24.0                         | 19.7      | 24.2          | 19.9      |
|                  | Voice + EGPRS | 1          | 30.7                       | 21.7      |               |           | 29.2                         | 20.2      |               |           |
|                  | Voice + EGPRS | 2          | 29.2                       | 23.2      | 25.4          | 19.4      | 26.2                         | 20.2      | 25.4          | 19.4      |
|                  | Voice + EGPRS | 3          | 27.2                       | 22.9      | 23.3          | 19.0      | 24.2                         | 19.9      | 23.3          | 19.0      |

| RF Air interface | Mode       |             | Max. RF Output Power (dBm) | Reduce RF Output Power (dBm) |
|------------------|------------|-------------|----------------------------|------------------------------|
| W-CDMA Band II   | Release 99 |             | 22.9                       | 19.5                         |
|                  | HSDPA      | Subtest 1/2 | 22.4                       | 19.0                         |
|                  |            | Subtest 3/4 | 21.9                       | 18.5                         |
|                  | HSUPA      | Subtest 1/5 | 21.9                       | 18.5                         |
|                  |            | Subtest 2/4 | 20.4                       | 17.0                         |
|                  |            | Subtest 3   | 21.4                       | 18.0                         |
|                  | DC-HSDPA   | Subtest 1/2 | 22.4                       | 19.0                         |
|                  |            | Subtest 3/4 | 21.9                       | 18.5                         |
| W-CDMA Band IV   | Release 99 |             | 24.5                       | 19.5                         |
|                  | HSDPA      | Subtest 1/2 | 24.0                       | 19.0                         |
|                  |            | Subtest 3/4 | 23.5                       | 18.5                         |
|                  | HSUPA      | Subtest 1/5 | 23.5                       | 18.5                         |
|                  |            | Subtest 2/4 | 22.0                       | 17.0                         |
|                  |            | Subtest 3   | 23.0                       | 18.0                         |
|                  | DC-HSDPA   | Subtest 1/2 | 24.0                       | 19.0                         |
|                  |            | Subtest 3/4 | 23.5                       | 18.5                         |
| W-CDMA Band V    | Release 99 |             | 22.7                       |                              |
|                  | HSDPA      | Subtest 1/2 | 22.0                       |                              |
|                  |            | Subtest 3/4 | 21.5                       |                              |
|                  | HSUPA      | Subtest 1/5 | 21.5                       |                              |
|                  |            | Subtest 2/4 | 20.0                       |                              |
|                  |            | Subtest 3   | 21.0                       |                              |
|                  | DC-HSDPA   | Subtest 1/2 | 22.0                       |                              |
|                  |            | Subtest 3/4 | 21.5                       |                              |

| RF Air interface | Mode  | Max. RF Output Power (dBm) | Reduce RF Output Power (dBm) |
|------------------|-------|----------------------------|------------------------------|
| LTE Band 2       | QPSK  | 23.4                       | 20.0                         |
|                  | 16QAM | 23.4                       | 20.0                         |
|                  | 64QAM | 23.0                       | 20.0                         |
| LTE Band 4       | QPSK  | 25.0                       | 20.0                         |
|                  | 16QAM | 24.0                       | 20.0                         |
|                  | 64QAM | 23.0                       | 20.0                         |
| LTE Band 5       | QPSK  | 23.0                       | 23.0                         |
|                  | 16QAM | 23.0                       | 23.0                         |
|                  | 64QAM | 23.0                       | 23.0                         |
| LTE Band 7       | QPSK  | 21.0                       | 21.0                         |
|                  | 16QAM | 21.0                       | 21.0                         |
|                  | 64QAM | 21.0                       | 21.0                         |
| LTE Band 12      | QPSK  | 25.0                       |                              |
|                  | 16QAM | 24.0                       |                              |
|                  | 64QAM | 23.0                       |                              |
| LTE Band 13      | QPSK  | 24.0                       |                              |
|                  | 16QAM | 23.0                       |                              |
|                  | 64QAM | 22.0                       |                              |
| LTE Band 17      | QPSK  | 24.0                       |                              |
|                  | 16QAM | 24.0                       |                              |
|                  | 64QAM | 23.0                       |                              |
| LTE Band 25      | QPSK  | 23.0                       | 21.0                         |
|                  | 16QAM | 23.0                       | 21.0                         |
|                  | 64QAM | 23.0                       | 21.0                         |
| LTE Band 26      | QPSK  | 23.0                       |                              |
|                  | 16QAM | 23.0                       |                              |
|                  | 64QAM | 23.0                       |                              |
| LTE Band 38      | QPSK  | 21.0                       |                              |
|                  | 16QAM | 21.0                       |                              |
|                  | 64QAM | 21.0                       |                              |
| LTE Band 41      | QPSK  | 21.0                       |                              |
|                  | 16QAM | 21.0                       |                              |
|                  | 64QAM | 21.0                       |                              |
| LTE Band 66      | QPSK  | 25.0                       | 21.0                         |
|                  | 16QAM | 24.0                       | 21.0                         |
|                  | 64QAM | 23.0                       | 21.0                         |

| RF Air interface | Mode           | Channel | Max. RF Output Power (dBm) |         |
|------------------|----------------|---------|----------------------------|---------|
|                  |                |         | Chain 0                    | Chain 1 |
| WiFi 2.4 GHz     | 802.11b        | 1-11    | 13.70                      | 13.50   |
|                  |                | 12      | 13.70                      | 13.50   |
|                  |                | 13      | 11.30                      | 11.69   |
|                  | 802.11g        | 1-11    | 13.70                      | 13.50   |
|                  |                | 12      | 9.20                       | 9.40    |
|                  |                | 13      | 2.70                       | 2.90    |
|                  | 802.11n HT20   | 1-11    | 13.70                      | 13.50   |
|                  |                | 12      | 8.23                       | 8.43    |
|                  |                | 13      | 2.73                       | 2.93    |
| WiFi 5 GHz       | 802.11a        | All     | 13.50                      | 14.00   |
|                  | 802.11n HT20   | All     | 13.50                      | 14.00   |
|                  | 802.11n HT40   | All     | 13.50                      | 14.00   |
|                  | 802.11ac VHT20 | All     | 13.50                      | 14.00   |
|                  | 802.11ac VHT40 | All     | 13.50                      | 14.00   |
|                  | 802.11ac VHT80 | All     | 13.50                      | 14.00   |
| Bluetooth        |                | Low     | 8.29                       |         |
|                  |                | Mid     | 9.88                       |         |
|                  |                | High    | 9.45                       |         |
| Bluetooth LE     |                | Low     | 4.50                       |         |
|                  |                | Mid     | 5.50                       |         |
|                  |                | High    | 6.80                       |         |

## 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         |                                  |                  | 23060/<br>704    | 23035/<br>701.5  | 23025/<br>700.5  | 23017/<br>699.7  |
|                                                             | Mid         |                                  |                  | 23095/<br>707.5  | 23095/<br>707.5  | 23095/<br>707.5  | 23095/<br>707.5  |
|                                                             | High        |                                  |                  | 23130/<br>711    | 23155/<br>713.5  | 23165/<br>714.5  | 23173/<br>715.3  |
|                                                             | Band 13     | Frequency range: 777 - 787 MHz   |                  |                  |                  |                  |                  |
|                                                             |             | Channel Bandwidth                |                  |                  |                  |                  |                  |
|                                                             |             | 20 MHz                           | 15 MHz           | 10 MHz           | 5 MHz            | 3 MHz            | 1.4 MHz          |
|                                                             | Low         |                                  |                  |                  | 23205/<br>779.5  |                  |                  |
|                                                             | Mid         |                                  |                  | 23230/<br>782    | 23230/<br>782    |                  |                  |
|                                                             | High        |                                  |                  |                  | 23255/<br>784.5  |                  |                  |

**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      |                                  |                   | 23780/<br>709    | 23755/<br>706.5   |                   |                   |
|                                                             | Mid      |                                  |                   | 23790/<br>710    | 23790/<br>710     |                   |                   |
|                                                             | High     |                                  |                   | 23800/<br>711    | 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 38  | Frequency range: 2570 - 2620 MHz |                   |                  |                   |                   |                   |
|                                                             |          | Channel Bandwidth                |                   |                  |                   |                   |                   |
|                                                             |          | 20 MHz                           | 15 MHz            | 10 MHz           | 5 MHz             | 3 MHz             | 1.4 MHz           |
|                                                             | Low      | 37850/<br>2580                   | 37825/<br>2577.5  | 37800/<br>2575   | 37775/<br>2572.5  |                   |                   |
|                                                             | Mid      | 38000/<br>2595                   | 38000/<br>2595    | 38000/<br>2595   | 38000/<br>2595    |                   |                   |
|                                                             | High     | 38150/<br>2610                   | 38175/<br>2612.5  | 38200/<br>2615   | 38225/<br>2617.5  |                   |                   |
|                                                             | Band 41  | Frequency range: 2496 - 2690 MHz |                   |                  |                   |                   |                   |
|                                                             |          | Channel Bandwidth                |                   |                  |                   |                   |                   |
|                                                             |          | 20 MHz                           | 15 MHz            | 10 MHz           | 5 MHz             | 3 MHz             | 1.4 MHz           |
|                                                             | Low      | 39750 / 2506.0                   |                   |                  |                   |                   |                   |
|                                                             | Low-Mid  | 40185 / 2549.5                   |                   |                  |                   |                   |                   |
|                                                             | Mid      | 40620 / 2593.0                   |                   |                  |                   |                   |                   |
|                                                             | Mid-High | 41055 / 2636.5                   |                   |                  |                   |                   |                   |
|                                                             | High     | 41490 / 2680.0                   |                   |                  |                   |                   |                   |
|                                                             | Band 66  | Frequency range: 1710 - 1780 MHz |                   |                  |                   |                   |                   |
|                                                             |          | Channel Bandwidth                |                   |                  |                   |                   |                   |
|                                                             |          | 20 MHz                           | 15 MHz            | 10 MHz           | 5 MHz             | 3 MHz             | 1.4 MHz           |
|                                                             | Low      | 132072/<br>1720                  | 132047/<br>1717.5 | 132022/<br>1715  | 131997/<br>1712.5 | 131987/<br>1711.5 | 131979/<br>1710.7 |
|                                                             | Mid      | 132322/<br>1745                  | 132322/<br>1745   | 132322/<br>1745  | 132322/<br>1745   | 132322/<br>1745   | 132322/<br>1745   |
|                                                             | High     | 132572/<br>1770                  | 132597/<br>1772.5 | 132622/<br>1775  | 132647/<br>1777.5 | 132657/<br>1778.5 | 132665/<br>1779.3 |

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

| LTE transmitter and antenna implementation | Refer to Appendix A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |            |                                                         |        |        |        |          |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------------------------------------------------|--------|--------|--------|----------|--|----------|---------|---------|-------|--------|--------|--------|------|-----|-----|-----|------|------|------|-----|--------|-----|-----|-----|------|------|------|-----|--------|-----|-----|-----|------|------|------|-----|--------|-----|-----|-----|------|------|------|-----|--------|-----|-----|-----|------|------|------|-----|---------|-----|--|--|--|--|--|-----|
| Maximum power reduction (MPR)              | <div>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</div> <table><tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (<math>N_{RB}</math>)</th><th rowspan="2">MPR (dB)</th></tr><tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr><tr><td>QPSK</td><td>&gt; 5</td><td>&gt; 4</td><td>&gt; 8</td><td>&gt; 12</td><td>&gt; 16</td><td>&gt; 18</td><td>≤ 1</td></tr><tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr><tr><td>16 QAM</td><td>&gt; 5</td><td>&gt; 4</td><td>&gt; 8</td><td>&gt; 12</td><td>&gt; 16</td><td>&gt; 18</td><td>≤ 2</td></tr><tr><td>64 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 2</td></tr><tr><td>64 QAM</td><td>&gt; 5</td><td>&gt; 4</td><td>&gt; 8</td><td>&gt; 12</td><td>&gt; 16</td><td>&gt; 18</td><td>≤ 3</td></tr><tr><td>256 QAM</td><td colspan="6">≥ 1</td><td>≤ 5</td></tr></table> <div>MPR Built-in by design<br/>The manufacturer MPR values are always within the 3GPP maximum MPR allowance but may not follow the default MPR values.<br/>A-MPR (additional MPR) was disabled during SAR testing</div> | Modulation | Channel bandwidth / Transmission bandwidth ( $N_{RB}$ ) |        |        |        |          |  | MPR (dB) | 1.4 MHz | 3.0 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | QPSK | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 1 | 16 QAM | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | ≤ 1 | 16 QAM | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 2 | 64 QAM | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | ≤ 2 | 64 QAM | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 3 | 256 QAM | ≥ 1 |  |  |  |  |  | ≤ 5 |
| Modulation                                 | Channel bandwidth / Transmission bandwidth ( $N_{RB}$ )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                                                         |        |        |        | 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      |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| 16 QAM                                     | > 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | > 4        | > 8                                                     | > 12   | > 16   | > 18   | ≤ 2      |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| 64 QAM                                     | ≤ 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ≤ 4        | ≤ 8                                                     | ≤ 12   | ≤ 16   | ≤ 18   | ≤ 2      |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| 64 QAM                                     | > 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | > 4        | > 8                                                     | > 12   | > 16   | > 18   | ≤ 3      |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| 256 QAM                                    | ≥ 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |                                                         |        |        |        | ≤ 5      |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |         |     |  |  |  |  |  |     |
| 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 Carrier Aggregation

| Combination               | CA configuration | Bandwidth (MHz) |    |    |   |   |     |      |    |    |   |   |     |
|---------------------------|------------------|-----------------|----|----|---|---|-----|------|----|----|---|---|-----|
|                           |                  | PCC             |    |    |   |   |     | SCC1 |    |    |   |   |     |
|                           |                  | 20              | 15 | 10 | 5 | 3 | 1.4 | 20   | 15 | 10 | 5 | 3 | 1.4 |
| Intra-Band contiguous     | 12B              |                 |    | √  | √ |   |     | √    |    | √  | √ |   |     |
|                           | 7C               |                 | √  |    |   |   |     | √    | √  |    |   |   |     |
|                           |                  | √               |    |    |   |   |     | √    | √  | √  |   |   |     |
|                           | 41C              |                 |    |    | √ |   |     | √    |    |    |   |   |     |
|                           |                  |                 | √  |    |   |   |     | √    | √  |    |   |   |     |
|                           |                  | √               |    |    |   |   |     | √    | √  | √  | √ |   |     |
|                           | 66B              |                 |    |    | √ |   |     |      | √  | √  | √ |   |     |
|                           |                  |                 | √  |    |   |   |     |      |    | √  | √ |   |     |
|                           | 66C              |                 |    |    | √ |   |     | √    |    |    |   |   |     |
|                           |                  |                 |    | √  |   |   |     | √    | √  |    |   |   |     |
|                           |                  |                 | √  |    |   |   |     | √    | √  | √  |   |   |     |
|                           |                  | √               |    |    |   |   |     | √    | √  | √  | √ |   |     |
| Intra-Band non-contiguous | 2A-2A            | √               | √  | √  | √ |   |     | √    | √  | √  | √ |   |     |
|                           | 4A-4A            | √               | √  | √  | √ |   |     | √    | √  | √  | √ |   |     |
|                           | 7A-7A            |                 |    |    | √ |   |     |      | √  |    |   |   |     |
|                           |                  |                 |    | √  |   |   |     |      | √  | √  |   |   |     |
|                           |                  |                 | √  |    |   |   |     | √    | √  |    |   |   |     |
|                           |                  | √               |    |    |   |   |     | √    |    |    |   |   |     |
| Inter-Band non-contiguous | 66A-66A          | √               | √  | √  | √ |   |     | √    | √  | √  | √ |   |     |
|                           | 2A-4A            | √               | √  | √  | √ | √ | √   | √    | √  | √  | √ |   |     |
|                           | 2A-5A            | √               | √  | √  | √ |   |     |      |    | √  | √ |   |     |
|                           | 2A-7A            | √               | √  | √  | √ |   |     | √    | √  | √  | √ |   |     |
|                           | 2A-12A           | √               | √  | √  | √ |   |     |      |    | √  | √ | √ |     |
|                           | 2A-13A           | √               | √  | √  | √ |   |     |      |    | √  |   |   |     |
|                           | 2A-17A           |                 |    | √  | √ |   |     |      |    | √  | √ |   |     |
|                           | 2A-29A           | √               | √  | √  | √ |   |     |      |    | √  | √ |   |     |
|                           | 4A-5A            | √               | √  | √  | √ |   |     |      |    | √  | √ |   |     |
|                           | 4A-7A            | √               | √  | √  | √ |   |     | √    | √  | √  | √ |   |     |
|                           | 4A-12A           | √               | √  | √  | √ | √ | √   |      |    | √  | √ | √ |     |
|                           | 4A-13A           | √               | √  | √  | √ |   |     |      |    | √  |   |   |     |
|                           | 4A-17A           |                 |    | √  | √ |   |     |      |    | √  | √ |   |     |
|                           | 4A-29A           | √               | √  | √  | √ |   |     |      |    | √  | √ |   |     |
|                           | 5A-7A            |                 |    | √  | √ | √ | √   | √    | √  | √  |   |   |     |
|                           | 7A-12A           | √               | √  | √  | √ |   |     |      |    | √  | √ |   |     |
|                           | 12A-66A          |                 |    | √  | √ |   |     | √    | √  | √  | √ | √ | √   |

### Note(s):

For supported channels, please refer to §6.4

| Combination               | CA configuration | Bandwidth (MHz) |    |    |   |   |     |      |    |    |   |   |     |      |    |    |   |   |     |
|---------------------------|------------------|-----------------|----|----|---|---|-----|------|----|----|---|---|-----|------|----|----|---|---|-----|
|                           |                  | PCC             |    |    |   |   |     | SCC1 |    |    |   |   |     | SCC2 |    |    |   |   |     |
|                           |                  | 20              | 15 | 10 | 5 | 3 | 1.4 | 20   | 15 | 10 | 5 | 3 | 1.4 | 20   | 15 | 10 | 5 | 3 | 1.4 |
| Inter-Band non-contiguous | 2A-2A-13A        | √               | √  | √  | √ |   |     | √    | √  | √  | √ |   |     |      |    | √  |   |   |     |
|                           | 2A-4A-4A         | √               | √  | √  | √ |   |     | √    | √  | √  | √ |   |     | √    | √  | √  | √ |   |     |
|                           | 2A-4A-5A         | √               | √  | √  | √ |   |     | √    | √  | √  | √ |   |     |      |    | √  | √ |   |     |
|                           | 2A-4A-12A        | √               | √  | √  | √ |   |     | √    | √  | √  | √ |   |     |      |    | √  | √ |   |     |
|                           | 2A-4A-13A        | √               | √  | √  | √ |   |     | √    | √  | √  | √ |   |     |      |    | √  |   |   |     |
|                           | 2A-4A-29A        | √               | √  | √  | √ |   |     | √    | √  | √  | √ |   |     |      |    | √  | √ |   |     |
|                           | 4A-4A-5A         | √               | √  | √  | √ |   |     | √    | √  | √  | √ |   |     |      |    | √  | √ |   |     |
|                           | 4A-4A-12A        | √               | √  | √  | √ |   |     | √    | √  | √  | √ |   |     |      |    | √  | √ |   |     |
|                           | 4A-4A-13A        | √               | √  | √  | √ |   |     | √    | √  | √  | √ |   |     |      |    | √  |   |   |     |
|                           | 4A-12B           | √               | √  | √  | √ |   |     |      |    | √  |   |   |     |      |    | √  | √ |   |     |
|                           | 5A-7A-7A         |                 |    | √  | √ |   |     | √    | √  | √  |   |   |     | √    | √  | √  |   |   |     |

### Note(s):

For supported channels, please refer to §6.4

## 6.6. LTE (TDD) Considerations

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

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

Table 4.2-1: Configuration of Special Subframe (lengths of DwPTS/GP/UpPTS).

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

### Calculated Duty Cycle

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

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

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

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

where

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

### Note(s):

This device supports uplink-downlink configurations 0-6. The configuration with highest duty cycle was used for SAR Testing: configuration 0 at 63.3% duty cycle and Special Subframe 7.

## 7. RF Exposure Conditions (Test Configurations)

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

| Wireless technologies  | RF Exposure Conditions | DUT-to-User Separation | Test Position    | Antenna-to-edge/surface | SAR Required |
|------------------------|------------------------|------------------------|------------------|-------------------------|--------------|
| WWAN                   | 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-worn              | 15 mm                  | Rear             | N/A                     | Yes          |
|                        |                        |                        | Front            | N/A                     | Yes          |
|                        | Hotspot                | 10 mm                  | Rear             | < 25 mm                 | Yes          |
|                        |                        |                        | Front            | < 25 mm                 | Yes          |
|                        |                        |                        | Edge 1 (Top)     | > 25 mm                 | No           |
|                        |                        |                        | Edge 2 (Right)   | < 25 mm                 | Yes          |
|                        |                        |                        | Edge 3 (Bottom)  | < 25 mm                 | Yes          |
|                        |                        |                        | Edge 4 (Left)    | < 25 mm                 | Yes          |
| WLAN/BT Main (Chain 0) | 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-worn              | 15 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                 | Yes          |
|                        |                        |                        | Edge 3 (Bottom)  | > 25 mm                 | No           |
|                        |                        |                        | Edge 4 (Left)    | > 25 mm                 | No           |
| WLAN Sub (Chain 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                   | 15 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           |
|                        |                        |                        | Edge 3 (Bottom)  | > 25 mm                 | No           |
|                        |                        |                        | Edge 4 (Left)    | < 25 mm                 | Yes          |

### Notes:

- SAR is not required when the distance from the antenna to the edge is > 25 mm 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.

The dielectric constant ( $\epsilon_r$ ) and conductivity ( $\sigma$ ) of typical tissue-equivalent media recipes are expected to be within  $\pm 5\%$  of the required target values; but for SAR measurement systems that have implemented the SAR error compensation algorithms documented in IEEE Std 1528-2013, to automatically compensate the measured SAR results for deviations between the measured and required tissue dielectric parameters, the tolerance for  $\epsilon_r$  and  $\sigma$  may be relaxed to  $\pm 10\%$ . This is limited to frequencies  $\leq 3$  GHz.

#### 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 | Date      | Band (MHz) | Tissue Type | Frequency (MHz) | Relative Permittivity ( $\epsilon_r$ ) |        |           | Conductivity ( $\sigma$ ) |        |           |
|---------|-----------|------------|-------------|-----------------|----------------------------------------|--------|-----------|---------------------------|--------|-----------|
|         |           |            |             |                 | Measured                               | Target | Delta (%) | Measured                  | Target | Delta (%) |
| 1       | 7/11/2017 | 750        | Body        | 750             | 54.15                                  | 55.55  | -2.51     | 0.92                      | 0.96   | -4.56     |
|         |           |            |             | 695             | 53.46                                  | 55.76  | -4.12     | 0.97                      | 0.96   | 0.98      |
|         |           |            |             | 790             | 53.14                                  | 55.39  | -4.07     | 1.01                      | 0.97   | 4.12      |
| 1       | 7/12/2017 | 1900       | Body        | 1900            | 51.76                                  | 53.30  | -2.89     | 1.48                      | 1.52   | -2.37     |
|         |           |            |             | 1850            | 51.92                                  | 53.30  | -2.59     | 1.45                      | 1.52   | -4.87     |
|         |           |            |             | 1920            | 51.75                                  | 53.30  | -2.91     | 1.50                      | 1.52   | -1.25     |
| 1       | 7/15/2017 | 1900       | Head        | 1900            | 41.34                                  | 40.00  | 3.35      | 1.44                      | 1.40   | 2.79      |
|         |           |            |             | 1850            | 41.31                                  | 40.00  | 3.28      | 1.45                      | 1.40   | 3.86      |
|         |           |            |             | 1920            | 41.15                                  | 40.00  | 2.88      | 1.45                      | 1.40   | 3.43      |
| 2       | 7/17/2017 | 2600       | Body        | 2600            | 51.15                                  | 52.51  | -2.59     | 2.23                      | 2.16   | 3.29      |
|         |           |            |             | 2495            | 51.50                                  | 52.64  | -2.17     | 2.10                      | 2.01   | 4.26      |
|         |           |            |             | 2690            | 50.72                                  | 52.40  | -3.20     | 2.36                      | 2.29   | 3.05      |
| 2       | 7/18/2017 | 2600       | Head        | 2600            | 38.04                                  | 39.01  | -2.49     | 1.96                      | 1.96   | -0.01     |
|         |           |            |             | 2495            | 38.42                                  | 39.14  | -1.85     | 1.85                      | 1.85   | -0.09     |
|         |           |            |             | 2690            | 37.67                                  | 38.90  | -3.16     | 2.09                      | 2.06   | 1.63      |
| 3       | 7/12/2017 | 750        | Head        | 750             | 43.05                                  | 41.96  | 2.59      | 0.83                      | 0.89   | -6.60     |
|         |           |            |             | 695             | 44.18                                  | 42.24  | 4.58      | 0.82                      | 0.89   | -7.70     |
|         |           |            |             | 790             | 42.48                                  | 41.76  | 1.73      | 0.86                      | 0.90   | -3.72     |
| 3       | 7/13/2017 | 750        | Head        | 750             | 41.74                                  | 41.96  | -0.53     | 0.90                      | 0.89   | 0.44      |
|         |           |            |             | 695             | 42.31                                  | 42.24  | 0.16      | 0.84                      | 0.89   | -5.41     |
|         |           |            |             | 790             | 41.21                                  | 41.76  | -1.31     | 0.93                      | 0.90   | 3.73      |
| 3       | 7/14/2017 | 750        | Head        | 750             | 40.41                                  | 41.96  | -3.70     | 0.93                      | 0.89   | 4.25      |
|         |           |            |             | 695             | 41.16                                  | 42.24  | -2.57     | 0.87                      | 0.89   | -1.74     |
|         |           |            |             | 790             | 39.82                                  | 41.76  | -4.64     | 0.97                      | 0.90   | 8.56      |
| 3       | 7/17/2017 | 1750       | Body        | 1750            | 51.35                                  | 53.44  | -3.91     | 1.45                      | 1.49   | -2.50     |
|         |           |            |             | 1710            | 51.42                                  | 53.54  | -3.97     | 1.41                      | 1.46   | -3.87     |
|         |           |            |             | 1755            | 51.29                                  | 53.43  | -4.00     | 1.45                      | 1.49   | -2.37     |
| 3       | 7/18/2017 | 1750       | Head        | 1750            | 41.79                                  | 40.08  | 4.25      | 1.39                      | 1.37   | 1.24      |
|         |           |            |             | 1710            | 41.96                                  | 40.15  | 4.52      | 1.36                      | 1.35   | 0.64      |
|         |           |            |             | 1755            | 41.80                                  | 40.08  | 4.30      | 1.39                      | 1.37   | 1.47      |
| 3       | 7/20/2017 | 1900       | Body        | 1900            | 55.47                                  | 53.30  | 4.07      | 1.58                      | 1.52   | 3.82      |
|         |           |            |             | 1850            | 55.58                                  | 53.30  | 4.28      | 1.53                      | 1.52   | 0.59      |
|         |           |            |             | 1920            | 55.51                                  | 53.30  | 4.15      | 1.59                      | 1.52   | 4.67      |

| SAR Lab | Date      | Band (MHz) | Tissue Type | Frequency (MHz) | Relative Permittivity ( $\epsilon_r$ ) |        |           | Conductivity ( $\sigma$ ) |        |           |
|---------|-----------|------------|-------------|-----------------|----------------------------------------|--------|-----------|---------------------------|--------|-----------|
|         |           |            |             |                 | Measured                               | Target | Delta (%) | Measured                  | Target | Delta (%) |
| 3       | 7/22/2017 | 5200       | Body        | 5200            | 48.74                                  | 49.02  | -0.57     | 5.37                      | 5.29   | 1.35      |
|         |           |            |             | 5150            | 48.76                                  | 49.09  | -0.67     | 5.28                      | 5.24   | 0.78      |
|         |           |            |             | 5350            | 48.47                                  | 48.82  | -0.71     | 5.56                      | 5.47   | 1.65      |
| 3       | 7/22/2017 | 5600       | Body        | 5600            | 48.09                                  | 48.48  | -0.80     | 5.89                      | 5.76   | 2.17      |
|         |           |            |             | 5500            | 48.12                                  | 48.61  | -1.01     | 5.77                      | 5.64   | 2.22      |
|         |           |            |             | 5725            | 47.92                                  | 48.31  | -0.80     | 6.07                      | 5.91   | 2.75      |
| 3       | 7/22/2017 | 5800       | Body        | 5800            | 47.49                                  | 48.20  | -1.47     | 6.22                      | 6.00   | 3.72      |
|         |           |            |             | 5700            | 48.01                                  | 48.34  | -0.69     | 6.07                      | 5.88   | 3.31      |
|         |           |            |             | 5850            | 47.64                                  | 48.20  | -1.16     | 6.24                      | 6.00   | 4.03      |
| 3       | 7/24/2017 | 5200       | Head        | 5200            | 35.46                                  | 35.99  | -1.47     | 4.63                      | 4.65   | -0.54     |
|         |           |            |             | 5150            | 35.33                                  | 36.05  | -1.99     | 4.59                      | 4.59   | 0.00      |
|         |           |            |             | 5350            | 34.98                                  | 35.82  | -2.34     | 4.77                      | 4.80   | -0.74     |
| 3       | 7/24/2017 | 5600       | Head        | 5600            | 34.71                                  | 35.53  | -2.32     | 5.02                      | 5.06   | -0.87     |
|         |           |            |             | 5500            | 34.82                                  | 35.65  | -2.32     | 4.92                      | 4.96   | -0.87     |
|         |           |            |             | 5725            | 34.55                                  | 35.39  | -2.38     | 5.15                      | 5.19   | -0.75     |
| 3       | 7/24/2017 | 5800       | Head        | 5800            | 34.48                                  | 35.30  | -2.32     | 5.22                      | 5.27   | -0.89     |
|         |           |            |             | 5700            | 34.59                                  | 35.42  | -2.34     | 5.14                      | 5.16   | -0.48     |
|         |           |            |             | 5850            | 34.40                                  | 35.30  | -2.55     | 5.26                      | 5.27   | -0.25     |
| 3       | 7/26/2017 | 5800       | Body        | 5800            | 46.19                                  | 48.20  | -4.17     | 6.26                      | 6.00   | 4.33      |
|         |           |            |             | 5700            | 46.22                                  | 48.34  | -4.39     | 6.09                      | 5.88   | 3.53      |
|         |           |            |             | 5850            | 46.02                                  | 48.20  | -4.52     | 6.28                      | 6.00   | 4.72      |
| 4       | 7/11/2017 | 835        | Head        | 835             | 41.73                                  | 41.50  | 0.55      | 0.93                      | 0.90   | 3.68      |
|         |           |            |             | 805             | 42.08                                  | 41.68  | 0.96      | 0.90                      | 0.90   | 0.71      |
|         |           |            |             | 915             | 40.71                                  | 41.50  | -1.90     | 1.00                      | 0.98   | 2.14      |
| 4       | 7/11/2017 | 835        | Body        | 835             | 53.19                                  | 55.20  | -3.64     | 0.99                      | 0.97   | 2.09      |
|         |           |            |             | 805             | 53.41                                  | 55.33  | -3.48     | 0.96                      | 0.97   | -1.18     |
|         |           |            |             | 905             | 52.44                                  | 55.00  | -4.65     | 1.05                      | 1.05   | -0.14     |
| 4       | 7/25/2017 | 2450       | Body        | 2450            | 54.56                                  | 52.70  | 3.53      | 2.04                      | 1.95   | 4.41      |
|         |           |            |             | 2400            | 54.64                                  | 52.77  | 3.54      | 1.97                      | 1.90   | 3.95      |
|         |           |            |             | 2480            | 54.33                                  | 52.66  | 3.17      | 2.06                      | 1.99   | 3.36      |
| 4       | 7/25/2017 | 2450       | Head        | 2450            | 39.64                                  | 39.20  | 1.12      | 1.84                      | 1.80   | 2.44      |
|         |           |            |             | 2400            | 39.70                                  | 39.30  | 1.03      | 1.77                      | 1.75   | 0.82      |
|         |           |            |             | 2480            | 39.52                                  | 39.16  | 0.91      | 1.86                      | 1.83   | 1.23      |

## 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.

**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 | Date      | Tissue Type | Dipole Type<br>Serial #   | Dipole<br>Cal. Due Date | Measured Results for 1g SAR |                     |                        |                | Measured Results for 10g SAR |                     |                        |                | Plot No. |
|---------|-----------|-------------|---------------------------|-------------------------|-----------------------------|---------------------|------------------------|----------------|------------------------------|---------------------|------------------------|----------------|----------|
|         |           |             |                           |                         | Zoom Scan<br>to 100 mW      | Normalize<br>to 1 W | Target<br>(Ref. Value) | Delta<br>±10 % | Zoom Scan<br>to 100 mW       | Normalize<br>to 1 W | Target<br>(Ref. Value) | Delta<br>±10 % |          |
| 1       | 7/11/2017 | Body        | D750V3 SN:1024            | 5/12/2018               | 0.901                       | 9.01                | 8.59                   | <b>4.89</b>    | 0.600                        | 6.00                | 5.65                   | 6.19           | 1,2      |
| 1       | 7/12/2017 | Body        | D1900V2 SN:5d163          | 9/19/2017               | 3.900                       | 39.00               | 39.60                  | <b>-1.52</b>   | 2.050                        | 20.50               | 21.00                  | -2.38          | 3,4      |
| 1       | 7/15/2017 | Head        | D1900V2 SN:5d043          | 11/9/2017               | 4.240                       | 42.40               | 40.00                  | <b>6.00</b>    | 2.190                        | 21.90               | 20.90                  | 4.78           | 5,6      |
| 2       | 7/17/2017 | Body        | D2600V2 SN:1036           | 3/10/2018               | 5.950                       | 59.50               | 54.60                  | <b>8.97</b>    | 2.590                        | 25.90               | 24.50                  | 5.71           | 7,8      |
| 2       | 7/18/2017 | Head        | D2600V2 SN:1036           | 3/10/2018               | 5.820                       | 58.20               | 57.50                  | 1.22           | 2.550                        | 25.50               | 25.60                  | -0.39          |          |
| 3       | 7/12/2017 | Head        | D750V3 SN:1024            | 5/12/2018               | 0.792                       | 7.92                | 8.47                   | <b>-6.49</b>   | 0.525                        | 5.25                | 5.53                   | -5.06          | 9,10     |
| 3       | 7/17/2017 | Body        | D1750V2 SN:1053           | 8/16/2017               | 3.720                       | 37.20               | 37.40                  | -0.53          | 1.990                        | 19.90               | 19.70                  | 1.02           |          |
| 3       | 7/18/2017 | Head        | D1750V2 SN:1053           | 8/16/2017               | 3.540                       | 35.40               | 37.40                  | <b>-5.35</b>   | 1.870                        | 18.70               | 19.70                  | -5.08          | 11,12    |
| 3       | 7/20/2017 | Body        | D1900V2 SN:5d163          | 9/19/2017               | 4.090                       | 40.90               | 39.60                  | <b>3.28</b>    | 2.160                        | 21.60               | 21.00                  | 2.86           | 13,14    |
| 3       | 7/22/2017 | Body        | D5GHzV2 SN:1138 (5.2 GHz) | 9/22/2017               | 7.790                       | 77.90               | 74.20                  | 4.99           | 2.220                        | 22.20               | 20.90                  | 6.22           |          |
| 3       | 7/22/2017 | Body        | D5GHzV2 SN:1138 (5.6 GHz) | 9/22/2017               | 8.250                       | 82.50               | 78.80                  | 4.70           | 2.340                        | 23.40               | 22.00                  | 6.36           |          |
| 3       | 7/22/2017 | Body        | D5GHzV2 SN:1138 (5.8 GHz) | 9/22/2017               | 7.060                       | 70.60               | 75.70                  | -6.74          | 2.090                        | 20.90               | 21.10                  | -0.95          |          |
| 3       | 7/25/2017 | Head        | D5GHzV2 SN:1138 (5.2 GHz) | 9/22/2017               | 7.690                       | 76.90               | 78.30                  | -1.79          | 2.200                        | 22.00               | 22.40                  | -1.79          |          |
| 3       | 7/25/2017 | Head        | D5GHzV2 SN:1138 (5.6 GHz) | 9/22/2017               | 7.930                       | 79.30               | 82.30                  | -3.65          | 2.270                        | 22.70               | 23.50                  | -3.40          |          |
| 3       | 7/25/2017 | Head        | D5GHzV2 SN:1138 (5.8 GHz) | 9/22/2017               | 7.280                       | 72.80               | 79.40                  | <b>-8.31</b>   | 2.100                        | 21.00               | 22.70                  | -7.49          | 15,16    |
| 3       | 7/26/2017 | Body        | D5GHzV2 SN:1138 (5.8 GHz) | 9/22/2017               | 7.700                       | 77.00               | 75.70                  | 1.72           | 2.180                        | 21.80               | 21.10                  | 3.32           |          |
| 4       | 7/11/2017 | Head        | D835V2 SN:4d142           | 9/22/2017               | 0.973                       | 9.73                | 9.30                   | 4.62           | 0.639                        | 6.39                | 6.07                   | 5.27           |          |
| 4       | 7/11/2017 | Body        | D835V2 SN:4d142           | 9/22/2017               | 1.020                       | 10.20               | 9.32                   | <b>9.44</b>    | 0.678                        | 6.78                | 6.18                   | 9.71           | 17,18    |
| 4       | 7/25/2017 | Body        | D2450V2 SN:899            | 3/10/2018               | 5.420                       | 54.20               | 50.30                  | <b>7.75</b>    | 2.510                        | 25.10               | 23.70                  | 5.91           | 19,20    |
| 4       | 7/25/2017 | Head        | D2450V2 SN:899            | 3/10/2018               | 5.620                       | 56.20               | 52.60                  | 6.84           | 2.540                        | 25.40               | 24.60                  | 3.25           |          |

## 9. Conducted Output Power Measurements

### 9.1. GSM

#### GSM850 Measured Results

| Band | Mode         | Coding Scheme | Time Slots | Ch No. | Freq. (MHz) | Max. Meas. Avg Pwr |             |
|------|--------------|---------------|------------|--------|-------------|--------------------|-------------|
|      |              |               |            |        |             | Burst (dBm)        | Frame (dBm) |
| 850  | GPRS (GMSK)  | CS4           | 1          | 128    | 824.2       | 32.6               | 23.6        |
|      |              |               |            | 190    | 836.6       | 32.7               | 23.7        |
|      |              |               |            | 251    | 848.8       | 32.6               | 23.6        |
|      |              |               | 2          | 128    | 824.2       | 29.6               | 23.6        |
|      |              |               |            | 190    | 836.6       | 29.6               | 23.6        |
|      |              |               |            | 251    | 848.8       | 29.5               | 23.5        |
|      |              |               | 3          | 128    | 824.2       | 27.8               | 23.5        |
|      |              |               |            | 190    | 836.6       | 27.9               | 23.6        |
|      |              |               |            | 251    | 848.8       | 27.8               | 23.5        |
|      |              |               | 4          | 128    | 824.2       | 26.5               | 23.5        |
|      |              |               |            | 190    | 836.6       | 26.6               | 23.6        |
|      |              |               |            | 251    | 848.8       | 26.6               | 23.6        |
|      | EGPRS (8PSK) | MCS9          | 1          | 128    | 824.2       | 26.8               | 17.8        |
|      |              |               |            | 190    | 836.6       | 26.9               | 17.9        |
|      |              |               |            | 251    | 848.8       | 26.8               | 17.8        |
|      |              |               | 2          | 128    | 824.2       | 25.5               | 19.5        |
|      |              |               |            | 190    | 836.6       | 25.6               | 19.6        |
|      |              |               |            | 251    | 848.8       | 25.5               | 19.5        |
|      |              |               | 3          | 128    | 824.2       | 23.9               | 19.6        |
|      |              |               |            | 190    | 836.6       | 23.9               | 19.6        |
|      |              |               |            | 251    | 848.8       | 23.9               | 19.6        |
|      |              |               | 4          | 128    | 824.2       | 23.3               | 20.3        |
|      |              |               |            | 190    | 836.6       | 23.4               | 20.4        |
|      |              |               |            | 251    | 848.8       | 23.4               | 20.4        |

#### Notes:

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

- GMSK (GPRS) mode with 3 time slots for Max power, based on the Tune-up Procedure. Refer to §6.3.
- SAR is not required for EGPRS (8PSK) mode because the maximum output power and tune-up limit is  $\leq 1/4\text{db}$  higher than GMSK GPRS or the adjusted SAR of the highest reported SAR of GMSK GPRS is  $\leq 1.2\text{W/kg}$ .

**GSM1900 Measured Results**

| Band | Mode         | Coding Scheme | Time Slots | Ch No. | Freq. (MHz) | Max. Meas. Avg Pwr |             | Reduced Meas. Avg Pwr |             |
|------|--------------|---------------|------------|--------|-------------|--------------------|-------------|-----------------------|-------------|
|      |              |               |            |        |             | Burst (dBm)        | Frame (dBm) | Burst (dBm)           | Frame (dBm) |
| 1900 | GPRS (GMSK)  | CS4           | 1          | 512    | 1850.2      | 29.9               | 20.9        | 28.8                  | 19.7        |
|      |              |               |            | 661    | 1880.0      | 29.9               | 20.9        | 28.6                  | 19.6        |
|      |              |               |            | 810    | 1909.8      | 29.8               | 20.8        | 28.5                  | 19.4        |
|      |              |               | 2          | 512    | 1850.2      | 28.4               | 22.4        | 25.5                  | 19.5        |
|      |              |               |            | 661    | 1880.0      | 28.3               | 22.3        | 25.3                  | 19.3        |
|      |              |               |            | 810    | 1909.8      | 28.5               | 22.5        | 25.5                  | 19.5        |
|      |              |               | 3          | 512    | 1850.2      | 26.4               | 22.1        | 23.8                  | 19.5        |
|      |              |               |            | 661    | 1880.0      | 26.4               | 22.1        | 23.6                  | 19.4        |
|      |              |               |            | 810    | 1909.8      | 26.5               | 22.2        | 23.8                  | 19.5        |
|      |              |               | 4          | 512    | 1850.2      | 25.4               | 22.4        | 22.7                  | 19.7        |
|      |              |               |            | 661    | 1880.0      | 25.5               | 22.5        | 22.5                  | 19.5        |
|      |              |               |            | 810    | 1909.8      | 25.6               | 22.6        | 22.7                  | 19.7        |
|      | EGPRS (8PSK) | MCS9          | 1          | 512    | 1850.2      | 25.6               | 16.6        | 25.8                  | 16.7        |
|      |              |               |            | 661    | 1880.0      | 25.5               | 16.5        | 25.6                  | 16.6        |
|      |              |               |            | 810    | 1909.8      | 25.6               | 16.6        | 25.9                  | 16.9        |
|      |              |               | 2          | 512    | 1850.2      | 25.2               | 19.2        | 25.2                  | 19.2        |
|      |              |               |            | 661    | 1880.0      | 25.1               | 19.1        | 25.1                  | 19.1        |
|      |              |               |            | 810    | 1909.8      | 25.3               | 19.3        | 25.3                  | 19.3        |
|      |              |               | 3          | 512    | 1850.2      | 22.8               | 18.5        | 23.3                  | 19.0        |
|      |              |               |            | 661    | 1880.0      | 22.7               | 18.4        | 23.1                  | 18.9        |
|      |              |               |            | 810    | 1909.8      | 22.8               | 18.5        | 23.3                  | 19.0        |
|      |              |               | 4          | 512    | 1850.2      | 21.6               | 18.6        | 21.8                  | 18.8        |
|      |              |               |            | 661    | 1880.0      | 21.5               | 18.5        | 21.7                  | 18.7        |
|      |              |               |            | 810    | 1909.8      | 21.8               | 18.8        | 21.9                  | 18.9        |

**Notes:**

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

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

**GSM850 DTM Measured Results**

| Band | Mode                     | Coding Scheme | Time Slots | Ch No. | Freq. (MHz) | Max Meas. Avg Pwr |             |             |             |
|------|--------------------------|---------------|------------|--------|-------------|-------------------|-------------|-------------|-------------|
|      |                          |               |            |        |             | CS                |             | PS          |             |
|      |                          |               |            |        |             | Burst (dBm)       | Frame (dBm) | Burst (dBm) | Frame (dBm) |
| 850  | GSM(Voice) + GPRS(GMSK)  | CS4           | 1          | 128    | 824.2       | 32.6              | 23.6        |             |             |
|      |                          |               |            | 190    | 836.6       | 32.7              | 23.7        |             |             |
|      |                          |               |            | 251    | 848.8       | 32.6              | 23.6        |             |             |
|      |                          |               | 2          | 128    | 824.2       | 29.2              | 23.2        | 29.2        | 23.2        |
|      |                          |               |            | 190    | 836.6       | 29.2              | 23.2        | 29.2        | 23.2        |
|      |                          |               |            | 251    | 848.8       | 29.2              | 23.2        | 29.2        | 23.2        |
|      |                          |               | 3          | 128    | 824.2       | 27.5              | 23.2        | 27.5        | 23.2        |
|      |                          |               |            | 190    | 836.6       | 27.5              | 23.2        | 27.5        | 23.2        |
|      |                          |               |            | 251    | 848.8       | 27.5              | 23.2        | 27.5        | 23.2        |
|      | GSM(Voice) + EGPRS(8PSK) | MCS9          | 1          | 128    | 824.2       | 32.6              | 23.6        |             |             |
|      |                          |               |            | 190    | 836.6       | 32.7              | 23.7        |             |             |
|      |                          |               |            | 251    | 848.8       | 32.6              | 23.6        |             |             |
|      |                          |               | 2          | 128    | 824.2       | 29.3              | 23.3        | 25.0        | 19.0        |
|      |                          |               |            | 190    | 836.6       | 29.4              | 23.4        | 25.0        | 19.0        |
|      |                          |               |            | 251    | 848.8       | 29.3              | 23.3        | 25.0        | 19.0        |
|      |                          |               | 3          | 128    | 824.2       | 27.6              | 23.3        | 22.9        | 18.6        |
|      |                          |               |            | 190    | 836.6       | 27.7              | 23.4        | 23.0        | 18.7        |
|      |                          |               |            | 251    | 848.8       | 27.6              | 23.3        | 22.9        | 18.6        |

**Notes:**

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

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

**GSM1900 DTM Measured Results**

| Band | Mode                     | Coding Scheme | Time Slots | Ch No. | Freq. (MHz) | Max Meas. Avg Pwr |             |             |             | Reduced Meas. Avg Pwr |             |             |             |
|------|--------------------------|---------------|------------|--------|-------------|-------------------|-------------|-------------|-------------|-----------------------|-------------|-------------|-------------|
|      |                          |               |            |        |             | CS                |             | PS          |             | CS                    |             | PS          |             |
|      |                          |               |            |        |             | Burst (dBm)       | Frame (dBm) | Burst (dBm) | Frame (dBm) | Burst (dBm)           | Frame (dBm) | Burst (dBm) | Frame (dBm) |
| 1900 | GSM(Voice) + GPRS(GMSK)  | CS4           | 1          | 512    | 1850.2      | 29.9              | 20.9        |             |             | 28.8                  | 19.7        |             |             |
|      |                          |               |            | 661    | 1880.0      | 29.9              | 20.9        |             |             | 28.6                  | 19.6        |             |             |
|      |                          |               |            | 810    | 1909.8      | 29.8              | 20.8        |             |             | 28.5                  | 19.4        |             |             |
|      |                          |               | 2          | 512    | 1850.2      | 28.0              | 22.0        | 28.3        | 22.3        | 25.4                  | 19.4        | 25.8        | 19.8        |
|      |                          |               |            | 661    | 1880.0      | 27.8              | 21.8        | 28.3        | 22.3        | 25.3                  | 19.3        | 25.7        | 19.7        |
|      |                          |               |            | 810    | 1909.8      | 28.1              | 22.1        | 28.4        | 22.4        | 25.5                  | 19.5        | 25.9        | 19.9        |
|      |                          |               | 3          | 512    | 1850.2      | 25.8              | 21.5        | 26.2        | 21.9        | 23.4                  | 19.1        | 23.8        | 19.5        |
|      |                          |               |            | 661    | 1880.0      | 25.7              | 21.4        | 26.1        | 21.8        | 23.2                  | 18.9        | 23.6        | 19.3        |
|      |                          |               |            | 810    | 1909.8      | 25.8              | 21.5        | 26.2        | 21.9        | 23.4                  | 19.1        | 23.8        | 19.5        |
|      | GSM(Voice) + EGPRS(8PSK) | MCS9          | 1          | 512    | 1850.2      | 29.9              | 20.9        |             |             | 28.8                  | 19.7        |             |             |
|      |                          |               |            | 661    | 1880.0      | 29.9              | 20.9        |             |             | 28.6                  | 19.6        |             |             |
|      |                          |               |            | 810    | 1909.8      | 29.8              | 20.8        |             |             | 28.5                  | 19.4        |             |             |
|      |                          |               | 2          | 512    | 1850.2      | 28.0              | 22.0        | 25.1        | 19.1        | 25.5                  | 19.5        | 25.4        | 19.4        |
|      |                          |               |            | 661    | 1880.0      | 27.9              | 21.9        | 24.9        | 18.9        | 25.3                  | 19.3        | 25.3        | 19.3        |
|      |                          |               |            | 810    | 1909.8      | 28.1              | 22.1        | 25.1        | 19.1        | 25.6                  | 19.6        | 25.4        | 19.4        |
|      |                          |               | 3          | 512    | 1850.2      | 26.0              | 21.7        | 22.6        | 18.3        | 23.4                  | 19.1        | 23.3        | 19.0        |
|      |                          |               |            | 661    | 1880.0      | 25.8              | 21.5        | 22.5        | 18.2        | 23.2                  | 18.9        | 23.3        | 19.0        |
|      |                          |               |            | 810    | 1909.8      | 25.8              | 21.5        | 22.7        | 18.4        | 23.5                  | 19.2        | 23.3        | 19.0        |

**Notes:**

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

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

## 9.2. W-CDMA

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

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

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

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

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

|                         | Mode                                 | HSDPA        | HSDPA | HSDPA | HSDPA |
|-------------------------|--------------------------------------|--------------|-------|-------|-------|
|                         | Subtest                              | 1            | 2     | 3     | 4     |
| W-CDMA General Settings | Loopback Mode                        | Test Mode 1  |       |       |       |
|                         | Rel99 RMC                            | 12.2kbps RMC |       |       |       |
|                         | HSDPA FRC                            | H-Set 1      |       |       |       |
|                         | Power Control Algorithm              | Algorithm 2  |       |       |       |
|                         | $\beta_c$                            | 2/15         | 11/15 | 15/15 | 15/15 |
|                         | $\beta_d$                            | 15/15        | 15/15 | 8/15  | 4/15  |
|                         | Bd (SF)                              | 64           |       |       |       |
|                         | $\beta_c/\beta_d$                    | 2/15         | 11/15 | 15/8  | 15/4  |
|                         | $\beta_{hs}$                         | 4/15         | 24/15 | 30/15 | 30/15 |
| 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 Table C.11.1.3 of 3GPP TS 34.121-1 v13. A summary of these settings are illustrated below:

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

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

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

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

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

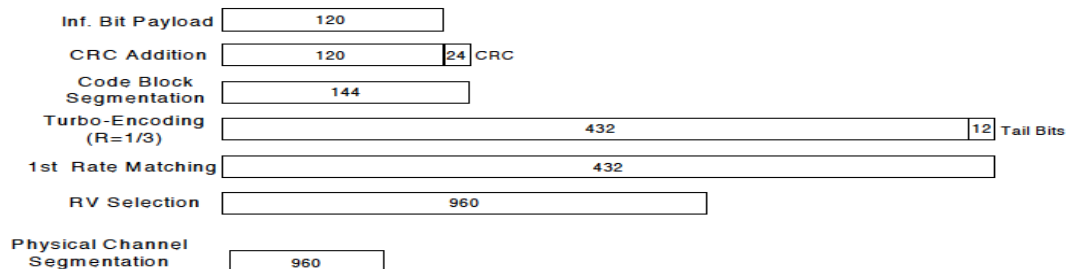
| Parameter During Connection setup | Unit | Value |
|-----------------------------------|------|-------|
| P-CPICH_Ec/Ior                    | dB   | -10   |
| P-CCPCH and SCH_Ec/Ior            | dB   | -12   |
| PICH_Ec/Ior                       | dB   | -15   |
| HS-PDSCH                         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

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

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

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

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

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

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

|                         | Mode                          | HSDPA        | HSDPA | HSDPA | HSDPA |
|-------------------------|-------------------------------|--------------|-------|-------|-------|
|                         | Subtest                       | 1            | 2     | 3     | 4     |
| WCDMA General Settings  | Loopback Mode                 | Test Mode 1  |       |       |       |
|                         | Rel99 RMC                     | 12.2kbps RMC |       |       |       |
|                         | HSDPA FRC                     | H-Set 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         | 12/15 | 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            |       |       |       |
|                         | $A_{hs} = \beta_{hs}/\beta_c$ | 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. Meas. Avg Pwr (dBm) | Reduced Meas. Avg Pwr (dBm) |
|----------------|----------|----------------|-----------|-------------|----------|--------------------------|-----------------------------|
| W-CDMA Band II | Rel 99   | RMC, 12.2 kbps | 9262      | 1852.4      | N/A      | 22.2                     | 19.2                        |
|                |          |                | 9400      | 1880.0      | N/A      | 22.2                     | 19.2                        |
|                |          |                | 9538      | 1907.6      | N/A      | 22.3                     | 19.1                        |
|                | HSDPA    | Subtest 1      | 9262      | 1852.4      | 0        | 21.2                     | 17.9                        |
|                |          |                | 9400      | 1880.0      | 0        | 21.2                     | 17.9                        |
|                |          |                | 9538      | 1907.6      | 0        | 21.4                     | 18.1                        |
|                |          | Subtest 2      | 9262      | 1852.4      | 0        | 21.2                     | 18.3                        |
|                |          |                | 9400      | 1880.0      | 0        | 21.2                     | 18.2                        |
|                |          |                | 9538      | 1907.6      | 0        | 21.4                     | 18.1                        |
|                |          | Subtest 3      | 9262      | 1852.4      | 0.5      | 20.6                     | 17.8                        |
|                |          |                | 9400      | 1880.0      | 0.5      | 20.8                     | 17.8                        |
|                |          |                | 9538      | 1907.6      | 0.5      | 20.9                     | 17.6                        |
|                |          | Subtest 4      | 9262      | 1852.4      | 0.5      | 20.8                     | 17.8                        |
|                |          |                | 9400      | 1880.0      | 0.5      | 20.7                     | 17.8                        |
|                |          |                | 9538      | 1907.6      | 0.5      | 20.9                     | 17.6                        |
|                | HSUPA    | Subtest 1      | 9262      | 1852.4      | 0        | 21.0                     | 18.3                        |
|                |          |                | 9400      | 1880.0      | 0        | 21.2                     | 18.0                        |
|                |          |                | 9538      | 1907.6      | 0        | 21.3                     | 18.0                        |
|                |          | Subtest 2      | 9262      | 1852.4      | 1.5      | 19.3                     | 16.5                        |
|                |          |                | 9400      | 1880.0      | 1.5      | 19.2                     | 16.2                        |
|                |          |                | 9538      | 1907.6      | 1.5      | 19.2                     | 16.2                        |
|                |          | Subtest 3      | 9262      | 1852.4      | 0.5      | 20.2                     | 17.1                        |
|                |          |                | 9400      | 1880.0      | 0.5      | 20.2                     | 17.1                        |
|                |          |                | 9538      | 1907.6      | 0.5      | 20.3                     | 17.4                        |
|                |          | Subtest 4      | 9262      | 1852.4      | 1.5      | 19.3                     | 16.2                        |
|                |          |                | 9400      | 1880.0      | 1.5      | 19.2                     | 16.4                        |
|                |          |                | 9538      | 1907.6      | 1.5      | 19.2                     | 16.2                        |
|                |          | Subtest 5      | 9262      | 1852.4      | 0        | 21.0                     | 18.3                        |
|                |          |                | 9400      | 1880.0      | 0        | 21.2                     | 18.2                        |
|                |          |                | 9538      | 1907.6      | 0        | 21.3                     | 17.8                        |
|                | DC-HSDPA | Subtest 1      | 9262      | 1852.4      | 0        | 21.4                     | 18.9                        |
|                |          |                | 9400      | 1880.0      | 0        | 21.3                     | 18.6                        |
|                |          |                | 9538      | 1907.6      | 0        | 21.5                     | 18.1                        |
|                |          | Subtest 2      | 9262      | 1852.4      | 0        | 21.4                     | 18.6                        |
|                |          |                | 9400      | 1880.0      | 0        | 21.3                     | 18.3                        |
|                |          |                | 9538      | 1907.6      | 0        | 21.5                     | 18.1                        |
|                |          | Subtest 3      | 9262      | 1852.4      | 0.5      | 20.6                     | 18.4                        |
|                |          |                | 9400      | 1880.0      | 0.5      | 20.8                     | 18.1                        |
|                |          |                | 9538      | 1907.6      | 0.5      | 20.9                     | 17.5                        |
|                |          | Subtest 4      | 9262      | 1852.4      | 0.5      | 20.6                     | 18.2                        |
|                |          |                | 9400      | 1880.0      | 0.5      | 20.8                     | 18.0                        |
|                |          |                | 9538      | 1907.6      | 0.5      | 20.9                     | 17.3                        |

**W-CDMA Band IV Measured Results**

| Band           | Mode     |                | UL Ch No. | Freq. (MHz) | MPR (dB) | Max. Meas. Avg Pwr (dBm) | Reduced Meas. Avg Pwr (dBm) |
|----------------|----------|----------------|-----------|-------------|----------|--------------------------|-----------------------------|
| W-CDMA Band IV | Rel 99   | RMC, 12.2 kbps | 1312      | 1712.4      | N/A      | 23.8                     | 19.1                        |
|                |          |                | 1413      | 1732.6      | N/A      | 23.6                     | 19.1                        |
|                |          |                | 1513      | 1752.6      | N/A      | 23.7                     | 19.2                        |
|                | HSDPA    | Subtest 1      | 1312      | 1712.4      | 0        | 22.7                     | 18.1                        |
|                |          |                | 1413      | 1732.6      | 0        | 22.6                     | 18.1                        |
|                |          |                | 1513      | 1752.6      | 0        | 22.8                     | 18.3                        |
|                |          | Subtest 2      | 1312      | 1712.4      | 0        | 22.8                     | 18.1                        |
|                |          |                | 1413      | 1732.6      | 0        | 22.4                     | 18.1                        |
|                |          |                | 1513      | 1752.6      | 0        | 22.6                     | 18.3                        |
|                |          | Subtest 3      | 1312      | 1712.4      | 0.5      | 22.4                     | 17.6                        |
|                |          |                | 1413      | 1732.6      | 0.5      | 22.4                     | 17.6                        |
|                |          |                | 1513      | 1752.6      | 0.5      | 22.5                     | 17.8                        |
|                |          | Subtest 4      | 1312      | 1712.4      | 0.5      | 22.4                     | 17.6                        |
|                |          |                | 1413      | 1732.6      | 0.5      | 22.4                     | 17.7                        |
|                |          |                | 1513      | 1752.6      | 0.5      | 22.5                     | 17.7                        |
|                | HSUPA    | Subtest 1      | 1312      | 1712.4      | 0        | 22.9                     | 18.0                        |
|                |          |                | 1413      | 1732.6      | 0        | 22.7                     | 17.9                        |
|                |          |                | 1513      | 1752.6      | 0        | 22.8                     | 18.2                        |
|                |          | Subtest 2      | 1312      | 1712.4      | 1.5      | 20.9                     | 16.2                        |
|                |          |                | 1413      | 1732.6      | 1.5      | 20.6                     | 16.2                        |
|                |          |                | 1513      | 1752.6      | 1.5      | 20.8                     | 16.1                        |
|                |          | Subtest 3      | 1312      | 1712.4      | 0.5      | 22.0                     | 17.0                        |
|                |          |                | 1413      | 1732.6      | 0.5      | 21.7                     | 17.3                        |
|                |          |                | 1513      | 1752.6      | 0.5      | 21.7                     | 17.2                        |
|                |          | Subtest 4      | 1312      | 1712.4      | 1.5      | 20.9                     | 16.1                        |
|                |          |                | 1413      | 1732.6      | 1.5      | 20.6                     | 16.2                        |
|                |          |                | 1513      | 1752.6      | 1.5      | 20.8                     | 16.2                        |
|                |          | Subtest 5      | 1312      | 1712.4      | 0        | 22.9                     | 18.1                        |
|                |          |                | 1413      | 1732.6      | 0        | 22.7                     | 17.9                        |
|                |          |                | 1513      | 1752.6      | 0        | 22.8                     | 16.8                        |
|                | DC-HSDPA | Subtest 1      | 1312      | 1712.4      | 0        | 22.7                     | 18.1                        |
|                |          |                | 1413      | 1732.6      | 0        | 22.6                     | 18.1                        |
|                |          |                | 1513      | 1752.6      | 0        | 22.8                     | 18.5                        |
|                |          | Subtest 2      | 1312      | 1712.4      | 0        | 22.8                     | 18.2                        |
|                |          |                | 1413      | 1732.6      | 0        | 22.4                     | 18.2                        |
|                |          |                | 1513      | 1752.6      | 0        | 22.6                     | 18.2                        |
|                |          | Subtest 3      | 1312      | 1712.4      | 0.5      | 22.4                     | 17.6                        |
|                |          |                | 1413      | 1732.6      | 0.5      | 22.4                     | 17.6                        |
|                |          |                | 1513      | 1752.6      | 0.5      | 22.5                     | 17.7                        |
|                |          | Subtest 4      | 1312      | 1712.4      | 0.5      | 22.4                     | 17.6                        |
|                |          |                | 1413      | 1732.6      | 0.5      | 22.4                     | 17.6                        |
|                |          |                | 1513      | 1752.6      | 0.5      | 22.5                     | 17.8                        |

**W-CDMA Band V Measured Results**

| Band          | Mode     |                | UL Ch No. | Freq. (MHz) | MPR (dB) | Max. Meas. Avg Pwr (dBm) |
|---------------|----------|----------------|-----------|-------------|----------|--------------------------|
| W-CDMA Band V | Rel 99   | RMC, 12.2 kbps | 4132      | 826.4       | N/A      | 22.0                     |
|               |          |                | 4183      | 836.6       | N/A      | 21.9                     |
|               |          |                | 4233      | 846.6       | N/A      | 21.6                     |
|               | HSDPA    | Subtest 1      | 4132      | 826.4       | 0        | 21.0                     |
|               |          |                | 4183      | 836.6       | 0        | 20.8                     |
|               |          |                | 4233      | 846.6       | 0        | 20.6                     |
|               |          | Subtest 2      | 4132      | 826.4       | 0        | 21.1                     |
|               |          |                | 4183      | 836.6       | 0        | 21.0                     |
|               |          |                | 4233      | 846.6       | 0        | 20.6                     |
|               |          | Subtest 3      | 4132      | 826.4       | 0.5      | 20.6                     |
|               |          |                | 4183      | 836.6       | 0.5      | 20.4                     |
|               |          |                | 4233      | 846.6       | 0.5      | 20.2                     |
|               |          | Subtest 4      | 4132      | 826.4       | 0.5      | 20.6                     |
|               |          |                | 4183      | 836.6       | 0.5      | 20.4                     |
|               |          |                | 4233      | 846.6       | 0.5      | 20.2                     |
|               | HSUPA    | Subtest 1      | 4132      | 826.4       | 0        | 21.5                     |
|               |          |                | 4183      | 836.6       | 0        | 21.5                     |
|               |          |                | 4233      | 846.6       | 0        | 21.4                     |
|               |          | Subtest 2      | 4132      | 826.4       | 1.5      | 19.5                     |
|               |          |                | 4183      | 836.6       | 1.5      | 20.0                     |
|               |          |                | 4233      | 846.6       | 1.5      | 19.7                     |
|               |          | Subtest 3      | 4132      | 826.4       | 0.5      | 21.0                     |
|               |          |                | 4183      | 836.6       | 0.5      | 20.2                     |
|               |          |                | 4233      | 846.6       | 0.5      | 20.5                     |
|               |          | Subtest 4      | 4132      | 826.4       | 1.5      | 19.5                     |
|               |          |                | 4183      | 836.6       | 1.5      | 20.0                     |
|               |          |                | 4233      | 846.6       | 1.5      | 19.7                     |
|               |          | Subtest 5      | 4132      | 826.4       | 0        | 21.5                     |
|               |          |                | 4183      | 836.6       | 0        | 21.5                     |
|               |          |                | 4233      | 846.6       | 0        | 21.4                     |
|               | DC-HSDPA | Subtest 1      | 4132      | 826.4       | 0        | 21.0                     |
|               |          |                | 4183      | 836.6       | 0        | 20.8                     |
|               |          |                | 4233      | 846.6       | 0        | 20.6                     |
|               |          | Subtest 2      | 4132      | 826.4       | 0        | 21.0                     |
|               |          |                | 4183      | 836.6       | 0        | 20.8                     |
|               |          |                | 4233      | 846.6       | 0        | 20.6                     |
|               |          | Subtest 3      | 4132      | 826.4       | 0.5      | 20.6                     |
|               |          |                | 4183      | 836.6       | 0.5      | 20.4                     |
|               |          |                | 4233      | 846.6       | 0.5      | 20.2                     |
|               |          | Subtest 4      | 4132      | 826.4       | 0.5      | 20.6                     |
|               |          |                | 4183      | 836.6       | 0.5      | 20.4                     |
|               |          |                | 4233      | 846.6       | 0.5      | 20.2                     |

### 9.3. LTE

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

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

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

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

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

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

| Network Signalling value | Requirements (subclause)       | E-UTRA Band                      | Channel bandwidth (MHz) | Resources Blocks ( $N_{RB}$ )                     | A-MPR (dB)        |
|--------------------------|--------------------------------|----------------------------------|-------------------------|---------------------------------------------------|-------------------|
| NS_01                    | 6.6.2.1.1                      | Table 5.5-1                      | 1.4, 3, 5, 10, 15, 20   | Table 5.6-1                                       | N/A               |
| NS_03                    | 6.6.2.2.1                      | 2, 4, 10, 23, 25, 35, 36, 66, 70 | 3                       | >5                                                | $\leq 1$          |
|                          |                                |                                  | 5                       | >6                                                | $\leq 1$          |
|                          |                                |                                  | 10                      | >6                                                | $\leq 1$          |
|                          |                                |                                  | 15                      | >8                                                | $\leq 1$          |
|                          |                                |                                  | 20                      | >10                                               | $\leq 1$          |
| NS_04                    | 6.6.2.2.2, 6.6.3.3.19          | 41                               | 5, 10, 15, 20           | Table 6.2.4-4, Table 6.2.4-4a                     |                   |
| NS_05                    | 6.6.3.3.1                      | 1                                | 10, 15, 20              | $\geq 50$ (NOTE1)                                 | $\leq 1$ (NOTE1)  |
|                          |                                |                                  | 15, 20                  | Table 6.2.4-18 (NOTE2)                            |                   |
|                          |                                | 65 (NOTE 3)                      | 10, 15, 20              | $\geq 50$                                         | $\leq 1$ (NOTE 1) |
|                          |                                |                                  | 15, 20                  | Table 6.2.4-18 (NOTE 2)                           |                   |
| 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                      | 13                               | 10                      | Table 6.2.4-2                                     |                   |
| NS_08                    | 6.6.3.3.2                      |                                  |                         |                                                   |                   |
| NS_08                    | 6.6.3.3.3                      | 19                               | 10, 15                  | > 44                                              | $\leq 3$          |
| NS_09                    | 6.6.3.3.4                      | 21                               | 10, 15                  | > 40                                              | $\leq 1$          |
|                          |                                |                                  |                         | > 55                                              | $\leq 2$          |
| NS_10                    |                                | 20                               | 15, 20                  | Table 6.2.4-3                                     |                   |
| NS_11                    | 6.6.2.2.1, 6.6.3.3.13          | 23                               | 1.4, 3, 5, 10, 15, 20   | Table 6.2.4-5                                     |                   |
| NS_12                    | 6.6.3.3.5                      | 26                               | 1.4, 3, 5, 10, 15       | Table 6.2.4-6                                     |                   |
| NS_13                    | 6.6.3.3.6                      | 26                               | 5                       | Table 6.2.4-7                                     |                   |
| NS_14                    | 6.6.3.3.7                      | 26                               | 10, 15                  | Table 6.2.4-8                                     |                   |
| NS_15                    | 6.6.3.3.8                      | 26                               | 1.4, 3, 5, 10, 15       | Table 6.2.4-9<br>Table 6.2.4-10                   |                   |
| NS_16                    | 6.6.3.3.9                      | 27                               | 3, 5, 10                | Table 6.2.4-11, Table 6.2.4-12,<br>Table 6.2.4-13 |                   |
| NS_17                    | 6.6.3.3.10                     | 28                               | 5, 10                   | Table 5.6-1                                       | N/A               |
| NS_18                    | 6.6.3.3.11                     | 28                               | 5                       | $\geq 2$                                          | $\leq 1$          |
|                          |                                |                                  | 10, 15, 20              | $\geq 1$                                          | $\leq 4$          |
| NS_19                    | 6.6.3.3.12                     | 44                               | 10, 15, 20              | Table 6.2.4-14                                    |                   |
| NS_20                    | 6.2.2, 6.6.2.2.1, 6.6.3.3.14   | 23                               | 5, 10, 15, 20           | Table 6.2.4-15                                    |                   |
| NS_21                    | 6.6.2.2.1, 6.6.3.3.15          | 30                               | 5, 10                   | Table 6.2.4-16                                    |                   |
| NS_22                    | 6.6.3.3.16                     | 42, 43                           | 5, 10, 15, 20           | Table 6.2.4-17                                    |                   |
| NS_23                    | 6.6.3.3.17                     | 42, 43                           | 5, 10, 15, 20           | N/A                                               |                   |
| NS_24                    | 6.6.3.3.20                     | 65 (NOTE 4)                      | 5, 10, 15, 20           | Table 6.2.4-19                                    |                   |
| NS_25                    | 6.6.3.3.21                     | 65 (NOTE 4)                      | 5, 10, 15, 20           | Table 6.2.4-20                                    |                   |
| NS_26                    | 6.6.3.3.22                     | 68                               | 10, 15                  | Table 6.2.4-21                                    |                   |
| NS_27                    | 6.6.2.2.5, 6.6.3.3.23          | 48                               | 5, 10, 15, 20           | Table 6.2.4-22                                    |                   |
| NS_28                    | 6.2.2A, 6.6.3.3.24             | 46 (NOTE 5)                      | 20                      | Table 6.2.4-23                                    |                   |
| NS_29                    | 6.2.2A, 6.6.2.3.1a, 6.6.3.3.25 | 46 (NOTE 5)                      | 20                      | Table 6.2.4-24                                    |                   |
| NS_30                    | 6.2.2A, 6.6.3.3.26             | 46 (NOTE 5)                      | 20                      | Table 6.2.4-25                                    |                   |
| NS_31                    | 6.2.2A, 6.6.3.3.27             | 46 (NOTE 5)                      | 20                      | Table 6.2.4-26                                    |                   |
| NS_32                    | -                              | -                                | -                       | -                                                 | -                 |

NOTE 1: Applicable when the lower edge of the assigned E-UTRA UL channel bandwidth frequency is larger than or equal to the upper edge of PHS band (1915.7 MHz) + 4 MHz + the channel BW assigned, where channel BW is as defined in subclause 5.6. A-MPR for

**LTE Band 2 Measured Results**

| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |          |            | MPR | Reduced Meas. Avg Pwr (dBm) |          |            |
|------------|----------|-------|---------------|-----------|-----|--------------------------|----------|------------|-----|-----------------------------|----------|------------|
|            |          |       |               |           |     | 1860 MHz                 | 1880 MHz | 1900 MHz   |     | 1860 MHz                    | 1880 MHz | 1900 MHz   |
| LTE Band 2 | 20       | QPSK  | 1             | 0         | 0   | 22.9                     | 22.8     | 23.0       | 0   | 19.5                        | 19.4     | 19.4       |
|            |          |       | 1             | 49        | 0   | 22.5                     | 22.4     | 22.7       | 0   | 19.1                        | 19.0     | 19.2       |
|            |          |       | 1             | 99        | 0   | 22.5                     | 22.6     | 22.8       | 0   | 19.2                        | 19.2     | 19.2       |
|            |          |       | 50            | 0         | 0   | 22.7                     | 22.7     | 22.9       | 0   | 19.3                        | 19.2     | 19.3       |
|            |          |       | 50            | 24        | 0   | 22.6                     | 22.6     | 22.8       | 0   | 19.2                        | 19.1     | 19.4       |
|            |          |       | 50            | 50        | 0   | 22.5                     | 22.5     | 22.9       | 0   | 19.2                        | 19.1     | 19.3       |
|            |          |       | 100           | 0         | 0   | 22.6                     | 22.6     | 22.9       | 0   | 19.3                        | 19.2     | 19.4       |
|            |          | 16QAM | 1             | 0         | 0   | 23.4                     | 23.3     | 23.4       | 0   | 20.0                        | 20.0     | 19.8       |
|            |          |       | 1             | 49        | 0   | 23.0                     | 22.9     | 23.1       | 0   | 19.6                        | 19.6     | 19.6       |
|            |          |       | 1             | 99        | 0   | 22.9                     | 23.2     | 23.2       | 0   | 19.7                        | 19.7     | 19.6       |
|            |          |       | 50            | 0         | 0.4 | 22.3                     | 22.3     | 22.6       | 0   | 19.3                        | 19.2     | 19.4       |
|            |          |       | 50            | 24        | 0.4 | 22.2                     | 22.2     | 22.5       | 0   | 19.3                        | 19.2     | 19.3       |
|            |          |       | 50            | 50        | 0.4 | 22.2                     | 22.1     | 22.5       | 0   | 19.2                        | 19.1     | 19.2       |
|            |          | 64QAM | 100           | 0         | 0.4 | 22.2                     | 22.2     | 22.5       | 0   | 19.3                        | 19.2     | 19.3       |
|            |          |       | 1             | 0         | 0.4 | 22.2                     | 21.8     | 22.0       | 0   | 19.3                        | 19.2     | 19.3       |
|            |          |       | 1             | 49        | 0.4 | 21.8                     | 21.9     | 22.0       | 0   | 19.1                        | 18.9     | 19.0       |
|            |          |       | 1             | 99        | 0.4 | 21.9                     | 21.9     | 21.9       | 0   | 19.1                        | 19.0     | 19.1       |
|            |          |       | 50            | 0         | 1.4 | 21.0                     | 21.0     | 21.3       | 0   | 19.0                        | 18.8     | 19.0       |
|            |          |       | 50            | 24        | 1.4 | 21.0                     | 21.0     | 21.2       | 0   | 18.9                        | 18.7     | 19.0       |
|            |          |       | 50            | 50        | 1.4 | 20.9                     | 20.8     | 21.2       | 0   | 18.9                        | 18.7     | 19.0       |
|            |          |       | 100           | 0         | 1.4 | 20.8                     | 20.9     | 21.2       | 0   | 18.9                        | 18.8     | 19.1       |
| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |          |            | MPR | Reduced Meas. Avg Pwr (dBm) |          |            |
|            |          |       |               |           |     | 1857.5 MHz               | 1880 MHz | 1902.5 MHz |     | 1857.5 MHz                  | 1880 MHz | 1902.5 MHz |
| LTE Band 2 | 15       | QPSK  | 1             | 0         | 0   | 22.8                     | 22.7     | 23.0       | 0   | 19.2                        | 19.3     | 19.5       |
|            |          |       | 1             | 37        | 0   | 22.6                     | 22.4     | 22.9       | 0   | 19.1                        | 19.0     | 19.3       |
|            |          |       | 1             | 74        | 0   | 22.5                     | 22.4     | 22.8       | 0   | 18.9                        | 19.0     | 19.3       |
|            |          |       | 36            | 0         | 0   | 22.7                     | 22.6     | 22.9       | 0   | 19.2                        | 19.2     | 19.5       |
|            |          |       | 36            | 20        | 0   | 22.6                     | 22.5     | 22.9       | 0   | 19.1                        | 19.1     | 19.4       |
|            |          |       | 36            | 39        | 0   | 22.6                     | 22.5     | 22.8       | 0   | 19.0                        | 19.1     | 19.4       |
|            |          |       | 75            | 0         | 0   | 22.6                     | 22.6     | 22.9       | 0   | 19.0                        | 19.1     | 19.4       |
|            |          | 16QAM | 1             | 0         | 0   | 23.2                     | 22.6     | 23.3       | 0   | 19.6                        | 19.6     | 19.4       |
|            |          |       | 1             | 37        | 0   | 22.9                     | 22.3     | 23.2       | 0   | 19.4                        | 19.4     | 19.3       |
|            |          |       | 1             | 74        | 0   | 22.9                     | 22.4     | 23.2       | 0   | 19.2                        | 19.4     | 19.2       |
|            |          |       | 36            | 0         | 0.4 | 22.4                     | 22.3     | 22.4       | 0   | 19.2                        | 19.2     | 19.5       |
|            |          |       | 36            | 20        | 0.4 | 22.3                     | 22.2     | 22.5       | 0   | 19.1                        | 19.2     | 19.4       |
|            |          |       | 36            | 39        | 0.4 | 22.2                     | 22.2     | 22.4       | 0   | 19.0                        | 19.1     | 19.4       |
|            |          | 64QAM | 75            | 0         | 0.4 | 22.3                     | 22.2     | 22.5       | 0   | 19.1                        | 19.2     | 19.4       |
|            |          |       | 1             | 0         | 0.4 | 21.6                     | 21.5     | 21.8       | 0   | 19.0                        | 19.0     | 19.4       |
|            |          |       | 1             | 37        | 0.4 | 21.7                     | 21.4     | 21.7       | 0   | 19.0                        | 18.9     | 19.4       |
|            |          |       | 1             | 74        | 0.4 | 21.5                     | 21.3     | 21.7       | 0   | 18.8                        | 18.9     | 19.4       |
|            |          |       | 36            | 0         | 1.4 | 20.9                     | 20.8     | 21.2       | 0   | 18.8                        | 18.8     | 19.2       |
|            |          |       | 36            | 20        | 1.4 | 20.8                     | 20.8     | 21.2       | 0   | 18.8                        | 18.8     | 19.1       |
|            |          |       | 36            | 39        | 1.4 | 20.8                     | 20.8     | 21.2       | 0   | 18.6                        | 18.7     | 19.1       |
|            |          |       | 75            | 0         | 1.4 | 20.8                     | 20.8     | 21.2       | 0   | 18.6                        | 18.7     | 19.1       |

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

| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |          |            | MPR | Reduced Meas. Avg Pwr (dBm) |          |            |
|------------|----------|-------|---------------|-----------|-----|--------------------------|----------|------------|-----|-----------------------------|----------|------------|
|            |          |       |               |           |     | 1855 MHz                 | 1880 MHz | 1905 MHz   |     | 1855 MHz                    | 1880 MHz | 1905 MHz   |
| LTE Band 2 | 10       | QPSK  | 1             | 0         | 0   | 22.8                     | 22.8     | 22.8       | 0   | 19.6                        | 19.3     | 19.4       |
|            |          |       | 1             | 25        | 0   | 22.5                     | 22.3     | 22.8       | 0   | 19.4                        | 19.0     | 19.2       |
|            |          |       | 1             | 49        | 0   | 22.6                     | 22.6     | 22.7       | 0   | 19.4                        | 19.2     | 19.2       |
|            |          |       | 25            | 0         | 0   | 22.5                     | 22.6     | 22.9       | 0   | 19.4                        | 19.1     | 19.4       |
|            |          |       | 25            | 12        | 0   | 22.5                     | 22.4     | 22.9       | 0   | 19.4                        | 19.1     | 19.3       |
|            |          |       | 25            | 25        | 0   | 22.4                     | 22.5     | 22.8       | 0   | 19.4                        | 19.1     | 19.3       |
|            |          |       | 50            | 0         | 0   | 22.5                     | 22.5     | 22.9       | 0   | 19.3                        | 19.1     | 19.3       |
|            |          | 16QAM | 1             | 0         | 0   | 23.1                     | 22.7     | 22.9       | 0   | 19.9                        | 19.3     | 19.4       |
|            |          |       | 1             | 25        | 0   | 22.8                     | 22.3     | 22.8       | 0   | 19.7                        | 18.9     | 19.3       |
|            |          |       | 1             | 49        | 0   | 23.0                     | 22.6     | 22.8       | 0   | 19.8                        | 19.1     | 19.2       |
|            |          |       | 25            | 0         | 0.4 | 22.2                     | 22.2     | 22.6       | 0   | 19.4                        | 19.2     | 19.4       |
|            |          |       | 25            | 12        | 0.4 | 22.1                     | 22.1     | 22.6       | 0   | 19.5                        | 19.1     | 19.4       |
|            |          |       | 25            | 25        | 0.4 | 22.1                     | 22.1     | 22.5       | 0   | 19.4                        | 19.1     | 19.3       |
|            |          |       | 50            | 0         | 0.4 | 22.1                     | 22.1     | 22.5       | 0   | 19.4                        | 19.1     | 19.3       |
|            |          | 64QAM | 1             | 0         | 0.4 | 22.0                     | 21.8     | 22.0       | 0   | 19.1                        | 18.9     | 19.0       |
|            |          |       | 1             | 25        | 0.4 | 21.7                     | 21.5     | 21.9       | 0   | 18.9                        | 18.8     | 18.9       |
|            |          |       | 1             | 49        | 0.4 | 21.9                     | 21.8     | 22.0       | 0   | 18.9                        | 18.9     | 18.8       |
|            |          |       | 25            | 0         | 1.4 | 20.7                     | 20.7     | 21.2       | 0   | 19.0                        | 18.7     | 19.0       |
|            |          |       | 25            | 12        | 1.4 | 20.7                     | 20.7     | 21.2       | 0   | 19.0                        | 18.7     | 19.0       |
|            |          |       | 25            | 25        | 1.4 | 20.6                     | 20.7     | 21.1       | 0   | 19.0                        | 18.7     | 19.0       |
|            |          |       | 50            | 0         | 1.4 | 20.7                     | 20.7     | 21.1       | 0   | 18.9                        | 18.7     | 19.0       |
| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |          |            | MPR | Reduced Meas. Avg Pwr (dBm) |          |            |
|            |          |       |               |           |     | 1852.5 MHz               | 1880 MHz | 1907.5 MHz |     | 1852.5 MHz                  | 1880 MHz | 1907.5 MHz |
| LTE Band 2 | 5        | QPSK  | 1             | 0         | 0   | 22.6                     | 22.6     | 23.0       | 0   | 19.5                        | 19.2     | 19.4       |
|            |          |       | 1             | 12        | 0   | 22.4                     | 22.4     | 22.9       | 0   | 19.4                        | 19.1     | 19.3       |
|            |          |       | 1             | 24        | 0   | 22.4                     | 22.6     | 22.9       | 0   | 19.4                        | 19.1     | 19.3       |
|            |          |       | 12            | 0         | 0   | 22.5                     | 22.4     | 22.9       | 0   | 19.3                        | 19.1     | 19.3       |
|            |          |       | 12            | 7         | 0   | 22.5                     | 22.4     | 22.8       | 0   | 19.3                        | 19.1     | 19.3       |
|            |          |       | 12            | 13        | 0   | 22.5                     | 22.4     | 22.9       | 0   | 19.3                        | 19.1     | 19.3       |
|            |          |       | 25            | 0         | 0   | 22.5                     | 22.4     | 22.8       | 0   | 19.3                        | 19.1     | 19.4       |
|            |          | 16QAM | 1             | 0         | 0   | 23.0                     | 22.8     | 23.0       | 0   | 19.5                        | 19.2     | 19.9       |
|            |          |       | 1             | 12        | 0   | 23.0                     | 22.6     | 22.9       | 0   | 19.5                        | 19.2     | 19.8       |
|            |          |       | 1             | 24        | 0   | 23.0                     | 22.7     | 22.9       | 0   | 19.6                        | 19.2     | 19.8       |
|            |          |       | 12            | 0         | 0.4 | 22.3                     | 22.1     | 22.5       | 0   | 19.4                        | 19.2     | 19.5       |
|            |          |       | 12            | 7         | 0.4 | 22.3                     | 22.1     | 22.5       | 0   | 19.4                        | 19.2     | 19.5       |
|            |          |       | 12            | 13        | 0.4 | 22.2                     | 22.1     | 22.5       | 0   | 19.4                        | 19.1     | 19.5       |
|            |          |       | 25            | 0         | 0.4 | 22.2                     | 22.1     | 22.4       | 0   | 19.4                        | 19.0     | 19.4       |
|            |          | 64QAM | 1             | 0         | 0.4 | 21.9                     | 22.0     | 22.4       | 0   | 19.1                        | 18.9     | 19.1       |
|            |          |       | 1             | 12        | 0.4 | 21.9                     | 21.9     | 22.4       | 0   | 19.2                        | 18.9     | 19.2       |
|            |          |       | 1             | 24        | 0.4 | 21.9                     | 22.0     | 22.4       | 0   | 19.1                        | 18.9     | 19.2       |
|            |          |       | 12            | 0         | 1.4 | 20.7                     | 20.6     | 21.2       | 0   | 19.1                        | 18.8     | 19.1       |
|            |          |       | 12            | 7         | 1.4 | 20.7                     | 20.7     | 21.2       | 0   | 19.1                        | 18.8     | 19.1       |
|            |          |       | 12            | 13        | 1.4 | 20.7                     | 20.7     | 21.2       | 0   | 19.0                        | 18.8     | 19.1       |
|            |          |       | 25            | 0         | 1.4 | 20.7                     | 20.6     | 21.2       | 0   | 19.0                        | 18.8     | 19.1       |

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

| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |          |            | MPR | Reduced Meas. Avg Pwr (dBm) |          |            |
|------------|----------|-------|---------------|-----------|-----|--------------------------|----------|------------|-----|-----------------------------|----------|------------|
|            |          |       |               |           |     | 1851.5 MHz               | 1880 MHz | 1908.5 MHz |     | 1851.5 MHz                  | 1880 MHz | 1908.5 MHz |
| LTE Band 2 | 3        | QPSK  | 1             | 0         | 0   | 22.5                     | 22.4     | 22.8       | 0   | 19.3                        | 19.0     | 19.2       |
|            |          |       | 1             | 8         | 0   | 22.6                     | 22.4     | 22.9       | 0   | 19.4                        | 19.1     | 19.3       |
|            |          |       | 1             | 14        | 0   | 22.4                     | 22.4     | 22.7       | 0   | 19.3                        | 19.0     | 19.2       |
|            |          |       | 8             | 0         | 0   | 22.5                     | 22.4     | 22.8       | 0   | 19.3                        | 19.1     | 19.3       |
|            |          |       | 8             | 4         | 0   | 22.5                     | 22.4     | 22.8       | 0   | 19.3                        | 19.1     | 19.3       |
|            |          |       | 8             | 7         | 0   | 22.5                     | 22.4     | 22.8       | 0   | 19.3                        | 19.1     | 19.3       |
|            |          |       | 15            | 0         | 0   | 22.4                     | 22.4     | 22.8       | 0   | 19.3                        | 19.0     | 19.3       |
|            |          | 16QAM | 1             | 0         | 0   | 22.9                     | 22.3     | 22.9       | 0   | 19.7                        | 19.0     | 19.3       |
|            |          |       | 1             | 8         | 0   | 23.0                     | 22.4     | 23.0       | 0   | 19.8                        | 19.1     | 19.4       |
|            |          |       | 1             | 14        | 0   | 22.8                     | 22.4     | 22.8       | 0   | 19.6                        | 18.9     | 19.2       |
|            |          |       | 8             | 0         | 0.4 | 22.2                     | 22.1     | 22.4       | 0   | 19.4                        | 19.2     | 19.3       |
|            |          |       | 8             | 4         | 0.4 | 22.2                     | 22.1     | 22.5       | 0   | 19.4                        | 19.2     | 19.3       |
|            |          |       | 8             | 7         | 0.4 | 22.2                     | 22.1     | 22.5       | 0   | 19.4                        | 19.2     | 19.3       |
|            |          |       | 15            | 0         | 0.4 | 22.1                     | 22.0     | 22.4       | 0   | 19.4                        | 19.1     | 19.2       |
|            |          | 64QAM | 1             | 0         | 0.4 | 22.0                     | 21.8     | 22.2       | 0   | 18.9                        | 18.8     | 19.0       |
|            |          |       | 1             | 8         | 0.4 | 21.9                     | 21.8     | 22.2       | 0   | 19.0                        | 18.8     | 19.0       |
|            |          |       | 1             | 14        | 0.4 | 21.9                     | 21.8     | 22.1       | 0   | 18.9                        | 18.7     | 19.0       |
|            |          |       | 8             | 0         | 1.4 | 20.7                     | 20.6     | 21.1       | 0   | 19.0                        | 18.8     | 19.1       |
|            |          |       | 8             | 4         | 1.4 | 20.7                     | 20.6     | 21.2       | 0   | 19.0                        | 18.8     | 19.1       |
|            |          |       | 8             | 7         | 1.4 | 20.7                     | 20.6     | 21.1       | 0   | 19.0                        | 18.8     | 19.1       |
|            |          |       | 15            | 0         | 1.4 | 20.6                     | 20.6     | 21.1       | 0   | 19.0                        | 18.8     | 19.1       |
| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |          |            | MPR | Reduced Meas. Avg Pwr (dBm) |          |            |
|            |          |       |               |           |     | 1850.7 MHz               | 1880 MHz | 1909.3 MHz |     | 1850.7 MHz                  | 1880 MHz | 1909.3 MHz |
| LTE Band 2 | 1.4      | QPSK  | 1             | 0         | 0   | 22.2                     | 22.2     | 22.6       | 0   | 19.2                        | 19.0     | 19.2       |
|            |          |       | 1             | 3         | 0   | 22.3                     | 22.3     | 22.6       | 0   | 19.3                        | 19.0     | 19.2       |
|            |          |       | 1             | 5         | 0   | 22.3                     | 22.2     | 22.5       | 0   | 19.2                        | 19.0     | 19.1       |
|            |          |       | 3             | 0         | 0   | 22.3                     | 22.2     | 22.6       | 0   | 19.2                        | 19.0     | 19.1       |
|            |          |       | 3             | 1         | 0   | 22.4                     | 22.3     | 22.6       | 0   | 19.3                        | 19.0     | 19.2       |
|            |          |       | 3             | 3         | 0   | 22.4                     | 22.2     | 22.6       | 0   | 19.3                        | 19.0     | 19.2       |
|            |          |       | 6             | 0         | 0   | 22.3                     | 22.2     | 22.6       | 0   | 19.2                        | 19.0     | 19.2       |
|            |          | 16QAM | 1             | 0         | 0   | 22.4                     | 22.6     | 22.7       | 0   | 19.2                        | 19.3     | 19.2       |
|            |          |       | 1             | 3         | 0   | 22.4                     | 22.6     | 22.8       | 0   | 19.3                        | 19.4     | 19.3       |
|            |          |       | 1             | 5         | 0   | 22.4                     | 22.6     | 22.7       | 0   | 19.2                        | 19.3     | 19.3       |
|            |          |       | 3             | 0         | 0   | 22.5                     | 22.4     | 22.6       | 0   | 19.4                        | 19.2     | 19.2       |
|            |          |       | 3             | 1         | 0   | 22.6                     | 22.4     | 22.7       | 0   | 19.5                        | 19.2     | 19.2       |
|            |          |       | 3             | 3         | 0   | 22.6                     | 22.4     | 22.7       | 0   | 19.5                        | 19.2     | 19.3       |
|            |          |       | 6             | 0         | 0.4 | 22.2                     | 21.8     | 22.3       | 0   | 19.4                        | 18.9     | 19.3       |
|            |          | 64QAM | 1             | 0         | 0.4 | 21.9                     | 21.7     | 22.4       | 0   | 18.7                        | 18.7     | 18.9       |
|            |          |       | 1             | 3         | 0.4 | 21.9                     | 21.8     | 22.4       | 0   | 18.9                        | 18.8     | 18.9       |
|            |          |       | 1             | 5         | 0.4 | 21.9                     | 21.7     | 22.5       | 0   | 18.9                        | 18.8     | 18.9       |
|            |          |       | 3             | 0         | 0.4 | 22.0                     | 21.7     | 22.2       | 0   | 18.8                        | 18.6     | 18.9       |
|            |          |       | 3             | 1         | 0.4 | 21.8                     | 21.7     | 22.2       | 0   | 18.8                        | 18.6     | 18.9       |
|            |          |       | 3             | 3         | 0.4 | 21.7                     | 21.7     | 22.2       | 0   | 18.8                        | 18.6     | 18.9       |
|            |          |       | 6             | 0         | 1.4 | 20.6                     | 20.6     | 21.1       | 0   | 18.8                        | 18.6     | 18.9       |

**LTE Band 4 Measured Results**

SAR for LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

**LTE Band 5 Measured Results**

SAR for LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to similar frequency range, same channel bandwidth and LTE Band 26 has a higher maximum tune-up limit.

**LTE Band 7 Measured Results**

| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |          |            |
|------------|----------|-------|---------------|-----------|-----|--------------------------|----------|------------|
|            |          |       |               |           |     | 2510 MHz                 | 2535 MHz | 2560 MHz   |
| LTE Band 7 | 20       | QPSK  | 1             | 0         | 0   | 20.4                     | 20.6     | 20.6       |
|            |          |       | 1             | 49        | 0   | 20.3                     | 20.4     | 20.4       |
|            |          |       | 1             | 99        | 0   | 20.2                     | 20.2     | 20.4       |
|            |          |       | 50            | 0         | 0   | 20.5                     | 20.5     | 20.6       |
|            |          |       | 50            | 24        | 0   | 20.5                     | 20.5     | 20.5       |
|            |          |       | 50            | 50        | 0   | 20.4                     | 20.4     | 20.4       |
|            |          |       | 100           | 0         | 0   | 20.5                     | 20.5     | 20.5       |
|            |          | 16QAM | 1             | 0         | 0   | 20.9                     | 21.0     | 21.0       |
|            |          |       | 1             | 49        | 0   | 20.7                     | 21.0     | 20.9       |
|            |          |       | 1             | 99        | 0   | 20.7                     | 20.8     | 20.9       |
|            |          |       | 50            | 0         | 0   | 20.5                     | 20.7     | 20.6       |
|            |          |       | 50            | 24        | 0   | 20.5                     | 20.6     | 20.6       |
|            |          |       | 50            | 50        | 0   | 20.4                     | 20.5     | 20.5       |
|            |          |       | 100           | 0         | 0   | 20.5                     | 20.5     | 20.6       |
|            |          | 64QAM | 1             | 0         | 0   | 20.2                     | 20.6     | 20.5       |
|            |          |       | 1             | 49        | 0   | 20.0                     | 20.3     | 20.2       |
|            |          |       | 1             | 99        | 0   | 20.0                     | 20.0     | 20.3       |
|            |          |       | 50            | 0         | 0   | 20.1                     | 20.0     | 20.1       |
|            |          |       | 50            | 24        | 0   | 19.9                     | 20.0     | 20.0       |
|            |          |       | 50            | 50        | 0   | 19.8                     | 19.9     | 20.0       |
|            |          |       | 100           | 0         | 0   | 19.9                     | 20.0     | 20.0       |
| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |          |            |
|            |          |       |               |           |     | 2507.5 MHz               | 2535 MHz | 2562.5 MHz |
| LTE Band 7 | 15       | QPSK  | 1             | 0         | 0   | 20.1                     | 20.3     | 20.4       |
|            |          |       | 1             | 37        | 0   | 20.0                     | 20.1     | 20.1       |
|            |          |       | 1             | 74        | 0   | 19.9                     | 20.0     | 20.2       |
|            |          |       | 36            | 0         | 0   | 20.2                     | 20.2     | 20.4       |
|            |          |       | 36            | 20        | 0   | 20.4                     | 20.2     | 20.2       |
|            |          |       | 36            | 39        | 0   | 20.4                     | 20.1     | 20.3       |
|            |          |       | 75            | 0         | 0   | 20.4                     | 20.2     | 20.3       |
|            |          | 16QAM | 1             | 0         | 0   | 20.9                     | 20.8     | 20.4       |
|            |          |       | 1             | 37        | 0   | 20.7                     | 20.5     | 20.1       |
|            |          |       | 1             | 74        | 0   | 20.7                     | 20.4     | 20.1       |
|            |          |       | 36            | 0         | 0   | 20.5                     | 20.3     | 20.4       |
|            |          |       | 36            | 20        | 0   | 20.5                     | 20.3     | 20.3       |
|            |          |       | 36            | 39        | 0   | 20.4                     | 20.1     | 20.4       |
|            |          |       | 75            | 0         | 0   | 20.5                     | 20.2     | 20.4       |
|            |          | 64QAM | 1             | 0         | 0   | 20.0                     | 20.2     | 20.5       |
|            |          |       | 1             | 37        | 0   | 19.7                     | 19.9     | 20.1       |
|            |          |       | 1             | 74        | 0   | 19.8                     | 19.9     | 20.1       |
|            |          |       | 36            | 0         | 0   | 19.8                     | 19.9     | 20.3       |
|            |          |       | 36            | 20        | 0   | 19.9                     | 19.9     | 20.2       |
|            |          |       | 36            | 39        | 0   | 19.8                     | 19.9     | 20.2       |
|            |          |       | 75            | 0         | 0   | 19.8                     | 19.8     | 20.2       |

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

| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |          |            |
|------------|----------|-------|---------------|-----------|-----|--------------------------|----------|------------|
|            |          |       |               |           |     | 2505 MHz                 | 2535 MHz | 2565 MHz   |
| LTE Band 7 | 10       | QPSK  | 1             | 0         | 0   | 20.3                     | 20.3     | 20.1       |
|            |          |       | 1             | 25        | 0   | 20.3                     | 20.2     | 20.1       |
|            |          |       | 1             | 49        | 0   | 20.2                     | 20.1     | 20.1       |
|            |          |       | 25            | 0         | 0   | 20.4                     | 20.2     | 20.1       |
|            |          |       | 25            | 12        | 0   | 20.4                     | 20.2     | 20.2       |
|            |          |       | 25            | 25        | 0   | 20.3                     | 20.1     | 20.2       |
|            |          |       | 50            | 0         | 0   | 20.4                     | 20.2     | 20.2       |
|            |          | 16QAM | 1             | 0         | 0   | 20.3                     | 20.9     | 20.1       |
|            |          |       | 1             | 25        | 0   | 20.3                     | 20.8     | 20.1       |
|            |          |       | 1             | 49        | 0   | 20.3                     | 20.7     | 20.1       |
|            |          |       | 25            | 0         | 0   | 20.5                     | 20.5     | 20.2       |
|            |          |       | 25            | 12        | 0   | 20.5                     | 20.5     | 20.3       |
|            |          |       | 25            | 25        | 0   | 20.5                     | 20.5     | 20.2       |
|            |          |       | 50            | 0         | 0   | 20.3                     | 20.5     | 20.3       |
|            |          | 64QAM | 1             | 0         | 0   | 20.0                     | 20.2     | 20.4       |
|            |          |       | 1             | 25        | 0   | 19.9                     | 20.2     | 20.4       |
|            |          |       | 1             | 49        | 0   | 19.9                     | 20.1     | 20.3       |
|            |          |       | 25            | 0         | 0   | 19.9                     | 20.0     | 19.9       |
|            |          |       | 25            | 12        | 0   | 19.9                     | 20.0     | 20.0       |
|            |          |       | 25            | 25        | 0   | 19.9                     | 19.9     | 20.0       |
|            |          |       | 50            | 0         | 0   | 19.9                     | 19.8     | 20.0       |
| Band       | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |          |            |
|            |          |       |               |           |     | 2502.5 MHz               | 2535 MHz | 2567.5 MHz |
| LTE Band 7 | 5        | QPSK  | 1             | 0         | 0   | 20.4                     | 20.2     | 20.4       |
|            |          |       | 1             | 12        | 0   | 20.5                     | 20.2     | 20.3       |
|            |          |       | 1             | 24        | 0   | 20.4                     | 20.2     | 20.2       |
|            |          |       | 12            | 0         | 0   | 20.4                     | 20.2     | 20.3       |
|            |          |       | 12            | 7         | 0   | 20.5                     | 20.3     | 20.3       |
|            |          |       | 12            | 13        | 0   | 20.5                     | 20.3     | 20.3       |
|            |          |       | 25            | 0         | 0   | 20.5                     | 20.3     | 20.3       |
|            |          | 16QAM | 1             | 0         | 0   | 20.5                     | 20.9     | 20.5       |
|            |          |       | 1             | 12        | 0   | 20.6                     | 20.8     | 20.4       |
|            |          |       | 1             | 24        | 0   | 20.6                     | 20.8     | 20.4       |
|            |          |       | 12            | 0         | 0   | 20.5                     | 20.6     | 20.5       |
|            |          |       | 12            | 7         | 0   | 20.6                     | 20.5     | 20.4       |
|            |          |       | 12            | 13        | 0   | 20.5                     | 20.5     | 20.4       |
|            |          |       | 25            | 0         | 0   | 20.4                     | 20.3     | 20.4       |
|            |          | 64QAM | 1             | 0         | 0   | 20.2                     | 20.0     | 20.1       |
|            |          |       | 1             | 12        | 0   | 20.3                     | 20.0     | 20.1       |
|            |          |       | 1             | 24        | 0   | 20.2                     | 20.0     | 20.0       |
|            |          |       | 12            | 0         | 0   | 20.0                     | 19.9     | 20.0       |
|            |          |       | 12            | 7         | 0   | 20.0                     | 19.9     | 20.1       |
|            |          |       | 12            | 13        | 0   | 20.1                     | 19.9     | 20.0       |
|            |          |       | 25            | 0         | 0   | 20.0                     | 19.9     | 20.0       |

**LTE Band 12 Measured Results**

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |           |           |
|-------------|----------|-------|---------------|-----------|-----|--------------------------|-----------|-----------|
|             |          |       |               |           |     | 704 MHz                  | 707.5 MHz | 711 MHz   |
| LTE Band 12 | 10       | QPSK  | 1             | 0         | 0   |                          | 24.4      |           |
|             |          |       | 1             | 25        | 0   |                          | 24.4      |           |
|             |          |       | 1             | 49        | 0   |                          | 24.2      |           |
|             |          |       | 25            | 0         | 1   |                          | 23.4      |           |
|             |          |       | 25            | 12        | 1   |                          | 23.4      |           |
|             |          |       | 25            | 25        | 1   |                          | 23.3      |           |
|             |          |       | 50            | 0         | 1   |                          | 23.4      |           |
|             |          | 16QAM | 1             | 0         | 1   |                          | 23.8      |           |
|             |          |       | 1             | 25        | 1   |                          | 23.6      |           |
|             |          |       | 1             | 49        | 1   |                          | 23.6      |           |
|             |          |       | 25            | 0         | 2   |                          | 22.5      |           |
|             |          |       | 25            | 12        | 2   |                          | 22.5      |           |
|             |          |       | 25            | 25        | 2   |                          | 22.4      |           |
|             |          |       | 50            | 0         | 2   |                          | 22.4      |           |
|             |          | 64QAM | 1             | 0         | 2   |                          | 22.5      |           |
|             |          |       | 1             | 25        | 2   |                          | 22.3      |           |
|             |          |       | 1             | 49        | 2   |                          | 22.2      |           |
|             |          |       | 25            | 0         | 3   |                          | 21.2      |           |
|             |          |       | 25            | 12        | 3   |                          | 21.2      |           |
|             |          |       | 25            | 25        | 3   |                          | 21.2      |           |
|             |          |       | 50            | 0         | 3   |                          | 21.2      |           |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |           |           |
|             |          |       |               |           |     | 701.5 MHz                | 707.5 MHz | 713.5 MHz |
| LTE Band 12 | 5        | QPSK  | 1             | 0         | 0   | 24.6                     | 24.4      | 24.4      |
|             |          |       | 1             | 12        | 0   | 24.5                     | 24.4      | 24.3      |
|             |          |       | 1             | 24        | 0   | 24.5                     | 24.3      | 24.3      |
|             |          |       | 12            | 0         | 1   | 23.5                     | 23.4      | 23.4      |
|             |          |       | 12            | 7         | 1   | 23.5                     | 23.4      | 23.4      |
|             |          |       | 12            | 13        | 1   | 23.5                     | 23.4      | 23.3      |
|             |          |       | 25            | 0         | 1   | 23.5                     | 23.4      | 23.3      |
|             |          | 16QAM | 1             | 0         | 1   | 23.6                     | 23.9      | 23.5      |
|             |          |       | 1             | 12        | 1   | 23.6                     | 23.9      | 23.4      |
|             |          |       | 1             | 24        | 1   | 23.6                     | 23.9      | 23.4      |
|             |          |       | 12            | 0         | 2   | 22.6                     | 22.6      | 22.5      |
|             |          |       | 12            | 7         | 2   | 22.6                     | 22.6      | 22.5      |
|             |          |       | 12            | 13        | 2   | 22.6                     | 22.5      | 22.4      |
|             |          |       | 25            | 0         | 2   | 22.5                     | 22.5      | 22.4      |
|             |          | 64QAM | 1             | 0         | 2   | 22.5                     | 22.5      | 22.3      |
|             |          |       | 1             | 12        | 2   | 22.6                     | 22.4      | 22.4      |
|             |          |       | 1             | 24        | 2   | 22.5                     | 22.4      | 22.2      |
|             |          |       | 12            | 0         | 3   | 21.3                     | 21.1      | 21.1      |
|             |          |       | 12            | 7         | 3   | 21.3                     | 21.2      | 21.2      |
|             |          |       | 12            | 13        | 3   | 21.3                     | 21.2      | 21.1      |
|             |          |       | 25            | 0         | 3   | 21.3                     | 21.2      | 21.1      |

**Note(s):**

10 MHz Bandwidth does not support at least three non-overlapping channels. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing per KDB 941225 D05 SAR for LTE Devices

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

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |           |           |
|-------------|----------|-------|---------------|-----------|-----|--------------------------|-----------|-----------|
|             |          |       |               |           |     | 700.5 MHz                | 707.5 MHz | 714.5 MHz |
| LTE Band 12 | 3        | QPSK  | 1             | 0         | 0   | 24.4                     | 24.4      | 24.2      |
|             |          |       | 1             | 8         | 0   | 24.5                     | 24.5      | 24.3      |
|             |          |       | 1             | 14        | 0   | 24.4                     | 24.4      | 24.2      |
|             |          |       | 8             | 0         | 1   | 23.5                     | 23.4      | 23.3      |
|             |          |       | 8             | 4         | 1   | 23.5                     | 23.4      | 23.3      |
|             |          |       | 8             | 7         | 1   | 23.5                     | 23.4      | 23.3      |
|             |          |       | 15            | 0         | 1   | 23.5                     | 23.4      | 23.3      |
|             |          | 16QAM | 1             | 0         | 1   | 23.5                     | 23.8      | 23.2      |
|             |          |       | 1             | 8         | 1   | 23.6                     | 23.8      | 23.2      |
|             |          |       | 1             | 14        | 1   | 23.5                     | 23.7      | 23.1      |
|             |          |       | 8             | 0         | 2   | 22.6                     | 22.5      | 22.5      |
|             |          |       | 8             | 4         | 2   | 22.6                     | 22.5      | 22.4      |
|             |          |       | 8             | 7         | 2   | 22.6                     | 22.5      | 22.4      |
|             |          |       | 15            | 0         | 2   | 22.5                     | 22.5      | 22.4      |
|             |          | 64QAM | 1             | 0         | 2   | 22.3                     | 22.5      | 22.4      |
|             |          |       | 1             | 8         | 2   | 22.1                     | 22.5      | 22.4      |
|             |          |       | 1             | 14        | 2   | 22.4                     | 22.3      | 22.3      |
|             |          |       | 8             | 0         | 3   | 21.3                     | 21.2      | 21.1      |
|             |          |       | 8             | 4         | 3   | 21.3                     | 21.2      | 21.1      |
|             |          |       | 8             | 7         | 3   | 21.3                     | 21.2      | 21.1      |
|             |          |       | 15            | 0         | 3   | 21.2                     | 21.2      | 21.1      |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |           |           |
|             |          |       |               |           |     | 699.7 MHz                | 707.5 MHz | 715.3 MHz |
| LTE Band 12 | 1.4      | QPSK  | 1             | 0         | 0   | 24.4                     | 24.3      | 24.2      |
|             |          |       | 1             | 3         | 0   | 24.4                     | 24.4      | 24.2      |
|             |          |       | 1             | 5         | 0   | 24.4                     | 24.3      | 24.1      |
|             |          |       | 3             | 0         | 0   | 24.4                     | 24.3      | 24.2      |
|             |          |       | 3             | 1         | 0   | 24.4                     | 24.3      | 24.2      |
|             |          |       | 3             | 3         | 0   | 24.4                     | 24.4      | 24.2      |
|             |          |       | 6             | 0         | 1   | 23.4                     | 23.3      | 23.2      |
|             |          | 16QAM | 1             | 0         | 1   | 23.4                     | 23.6      | 23.2      |
|             |          |       | 1             | 3         | 1   | 23.5                     | 23.7      | 23.3      |
|             |          |       | 1             | 5         | 1   | 23.4                     | 23.6      | 23.2      |
|             |          |       | 3             | 0         | 1   | 23.6                     | 23.5      | 23.3      |
|             |          |       | 3             | 1         | 1   | 23.6                     | 23.5      | 23.3      |
|             |          |       | 3             | 3         | 1   | 23.6                     | 23.5      | 23.3      |
|             |          |       | 6             | 0         | 2   | 22.6                     | 22.3      | 22.4      |
|             |          | 64QAM | 1             | 0         | 2   | 22.3                     | 22.4      | 22.3      |
|             |          |       | 1             | 3         | 2   | 22.3                     | 22.3      | 22.3      |
|             |          |       | 1             | 5         | 2   | 22.2                     | 22.3      | 22.2      |
|             |          |       | 3             | 0         | 2   | 22.2                     | 22.2      | 22.1      |
|             |          |       | 3             | 1         | 2   | 22.3                     | 22.2      | 22.0      |
|             |          |       | 3             | 3         | 2   | 22.3                     | 22.2      | 22.0      |
|             |          |       | 6             | 0         | 3   | 21.2                     | 21.1      | 21.0      |

**LTE Band 13 Measured Results**

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |
|-------------|----------|-------|---------------|-----------|-----|--------------------------|
|             |          |       |               |           |     | 782 MHz                  |
| LTE Band 13 | 10       | QPSK  | 1             | 0         | 0   | 23.5                     |
|             |          |       | 1             | 25        | 0   | 23.5                     |
|             |          |       | 1             | 49        | 0   | 23.5                     |
|             |          |       | 25            | 0         | 1   | 22.5                     |
|             |          |       | 25            | 12        | 1   | 22.6                     |
|             |          |       | 25            | 25        | 1   | 22.5                     |
|             |          |       | 50            | 0         | 1   | 22.5                     |
|             |          | 16QAM | 1             | 0         | 1   | 22.5                     |
|             |          |       | 1             | 25        | 1   | 22.4                     |
|             |          |       | 1             | 49        | 1   | 22.4                     |
|             |          |       | 25            | 0         | 2   | 21.5                     |
|             |          |       | 25            | 12        | 2   | 21.6                     |
|             |          |       | 25            | 25        | 2   | 21.5                     |
|             |          |       | 50            | 0         | 2   | 21.5                     |
|             |          | 64QAM | 1             | 0         | 2   | 21.1                     |
|             |          |       | 1             | 25        | 2   | 21.1                     |
|             |          |       | 1             | 49        | 2   | 21.1                     |
|             |          |       | 25            | 0         | 3   | 20.1                     |
|             |          |       | 25            | 12        | 3   | 20.2                     |
|             |          |       | 25            | 25        | 3   | 20.2                     |
|             |          |       | 50            | 0         | 3   | 20.2                     |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |
|             |          |       |               |           |     | 782 MHz                  |
| LTE Band 13 | 5        | QPSK  | 1             | 0         | 0   | 23.6                     |
|             |          |       | 1             | 12        | 0   | 23.6                     |
|             |          |       | 1             | 24        | 0   | 23.6                     |
|             |          |       | 12            | 0         | 1   | 22.6                     |
|             |          |       | 12            | 7         | 1   | 22.6                     |
|             |          |       | 12            | 13        | 1   | 22.5                     |
|             |          |       | 25            | 0         | 1   | 22.6                     |
|             |          | 16QAM | 1             | 0         | 1   | 22.6                     |
|             |          |       | 1             | 12        | 1   | 22.6                     |
|             |          |       | 1             | 24        | 1   | 22.6                     |
|             |          |       | 12            | 0         | 2   | 21.7                     |
|             |          |       | 12            | 7         | 2   | 21.6                     |
|             |          |       | 12            | 13        | 2   | 21.6                     |
|             |          |       | 25            | 0         | 2   | 21.6                     |
|             |          | 64QAM | 1             | 0         | 2   | 21.2                     |
|             |          |       | 1             | 12        | 2   | 21.3                     |
|             |          |       | 1             | 24        | 2   | 21.3                     |
|             |          |       | 12            | 0         | 3   | 20.2                     |
|             |          |       | 12            | 7         | 3   | 20.3                     |
|             |          |       | 12            | 13        | 3   | 20.2                     |
|             |          |       | 25            | 0         | 3   | 20.2                     |

**Note(s):**

10/5 MHz Bandwidths does not support at least three non-overlapping channels. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing per KDB 941225 D05 SAR for LTE Devices

**LTE Band 17 Measured Results**

SAR for LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

**LTE Band 25 Measured Results**

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |            |            | MPR | Reduced Meas. Avg Pwr (dBm) |            |            |
|-------------|----------|-------|---------------|-----------|-----|--------------------------|------------|------------|-----|-----------------------------|------------|------------|
|             |          |       |               |           |     | 1860 MHz                 | 1882.5 MHz | 1905 MHz   |     | 1860 MHz                    | 1882.5 MHz | 1905 MHz   |
| LTE Band 25 | 20       | QPSK  | 1             | 0         | 0   | 22.3                     | 22.4       | 22.5       | 0   | 20.4                        | 20.6       | 20.6       |
|             |          |       | 1             | 49        | 0   | 21.9                     | 22.0       | 22.2       | 0   | 20.1                        | 20.1       | 20.3       |
|             |          |       | 1             | 99        | 0   | 22.0                     | 22.1       | 22.1       | 0   | 20.2                        | 20.2       | 20.4       |
|             |          |       | 50            | 0         | 0   | 22.2                     | 22.2       | 22.4       | 0   | 20.3                        | 20.4       | 20.5       |
|             |          |       | 50            | 24        | 0   | 22.1                     | 22.1       | 22.3       | 0   | 20.2                        | 20.3       | 20.4       |
|             |          |       | 50            | 50        | 0   | 22.0                     | 22.1       | 22.2       | 0   | 20.1                        | 20.3       | 20.4       |
|             |          |       | 100           | 0         | 0   | 22.1                     | 22.1       | 22.2       | 0   | 20.2                        | 20.3       | 20.4       |
|             |          | 16QAM | 1             | 0         | 0   | 22.7                     | 22.8       | 23.0       | 0   | 20.8                        | 21.0       | 21.0       |
|             |          |       | 1             | 49        | 0   | 22.3                     | 22.5       | 22.7       | 0   | 20.6                        | 20.7       | 20.7       |
|             |          |       | 1             | 99        | 0   | 22.5                     | 22.6       | 22.6       | 0   | 20.6                        | 20.8       | 20.7       |
|             |          |       | 50            | 0         | 0   | 22.1                     | 22.2       | 22.4       | 0   | 20.3                        | 20.4       | 20.5       |
|             |          |       | 50            | 24        | 0   | 22.0                     | 22.1       | 22.2       | 0   | 20.2                        | 20.3       | 20.4       |
|             |          |       | 50            | 50        | 0   | 22.0                     | 22.1       | 22.2       | 0   | 20.2                        | 20.3       | 20.4       |
|             |          |       | 100           | 0         | 0   | 22.0                     | 22.1       | 22.3       | 0   | 20.2                        | 20.4       | 20.4       |
|             |          | 64QAM | 1             | 0         | 0   | 21.9                     | 21.6       | 22.1       | 0   | 19.9                        | 20.0       | 20.4       |
|             |          |       | 1             | 49        | 0   | 21.8                     | 21.6       | 22.1       | 0   | 19.5                        | 19.7       | 20.2       |
|             |          |       | 1             | 99        | 0   | 21.6                     | 21.8       | 21.8       | 0   | 19.8                        | 19.8       | 20.2       |
|             |          |       | 50            | 0         | 1   | 20.8                     | 20.9       | 21.1       | 0   | 19.8                        | 19.9       | 20.3       |
|             |          |       | 50            | 24        | 1   | 20.8                     | 20.9       | 21.1       | 0   | 20.0                        | 20.0       | 20.2       |
|             |          |       | 50            | 50        | 1   | 20.7                     | 20.8       | 21.0       | 0   | 20.0                        | 19.9       | 20.3       |
|             |          |       | 100           | 0         | 1   | 20.7                     | 20.8       | 21.0       | 0   | 19.9                        | 20.0       | 20.2       |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |            |            | MPR | Reduced Meas. Avg Pwr (dBm) |            |            |
|             |          |       |               |           |     | 1857.5 MHz               | 1882.5 MHz | 1907.5 MHz |     | 1857.5 MHz                  | 1882.5 MHz | 1907.5 MHz |
| LTE Band 25 | 15       | QPSK  | 1             | 0         | 0   | 22.2                     | 22.2       | 22.2       | 0   | 20.3                        | 20.5       | 20.6       |
|             |          |       | 1             | 37        | 0   | 22.0                     | 22.0       | 22.1       | 0   | 20.2                        | 20.3       | 20.4       |
|             |          |       | 1             | 74        | 0   | 22.1                     | 22.0       | 22.1       | 0   | 20.1                        | 20.3       | 20.4       |
|             |          |       | 36            | 0         | 0   | 22.2                     | 22.1       | 22.3       | 0   | 20.3                        | 20.3       | 20.5       |
|             |          |       | 36            | 20        | 0   | 22.1                     | 22.1       | 22.2       | 0   | 20.2                        | 20.2       | 20.5       |
|             |          |       | 36            | 39        | 0   | 22.0                     | 22.1       | 22.2       | 0   | 20.2                        | 20.3       | 20.5       |
|             |          |       | 75            | 0         | 0   | 22.1                     | 22.1       | 22.2       | 0   | 20.2                        | 20.3       | 20.5       |
|             |          | 16QAM | 1             | 0         | 0   | 22.2                     | 22.6       | 22.7       | 0   | 20.6                        | 20.8       | 20.5       |
|             |          |       | 1             | 37        | 0   | 21.9                     | 22.4       | 22.5       | 0   | 20.5                        | 20.6       | 20.4       |
|             |          |       | 1             | 74        | 0   | 22.0                     | 22.3       | 22.5       | 0   | 20.5                        | 20.6       | 20.4       |
|             |          |       | 36            | 0         | 0   | 22.1                     | 22.2       | 22.4       | 0   | 20.3                        | 20.3       | 20.6       |
|             |          |       | 36            | 20        | 0   | 22.1                     | 22.1       | 22.3       | 0   | 20.2                        | 20.3       | 20.5       |
|             |          |       | 36            | 39        | 0   | 22.0                     | 22.1       | 22.2       | 0   | 20.2                        | 20.4       | 20.5       |
|             |          |       | 75            | 0         | 0   | 22.1                     | 22.1       | 22.2       | 0   | 20.2                        | 20.4       | 20.5       |
|             |          | 64QAM | 1             | 0         | 0   | 21.9                     | 21.9       | 22.1       | 0   | 19.9                        | 20.0       | 20.3       |
|             |          |       | 1             | 37        | 0   | 21.9                     | 21.7       | 22.0       | 0   | 19.8                        | 20.0       | 20.2       |
|             |          |       | 1             | 74        | 0   | 21.8                     | 21.8       | 21.9       | 0   | 19.8                        | 20.0       | 20.3       |
|             |          |       | 36            | 0         | 1   | 20.8                     | 20.9       | 21.1       | 0   | 19.9                        | 19.9       | 20.2       |
|             |          |       | 36            | 20        | 1   | 20.8                     | 20.9       | 21.1       | 0   | 19.9                        | 20.0       | 20.2       |
|             |          |       | 36            | 39        | 1   | 20.8                     | 20.8       | 21.0       | 0   | 19.9                        | 20.0       | 20.2       |
|             |          |       | 75            | 0         | 1   | 20.8                     | 20.8       | 21.0       | 0   | 19.9                        | 20.0       | 20.2       |

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

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |            |            | MPR | Reduced Meas. Avg Pwr (dBm) |            |            |
|-------------|----------|-------|---------------|-----------|-----|--------------------------|------------|------------|-----|-----------------------------|------------|------------|
|             |          |       |               |           |     | 1855 MHz                 | 1882.5 MHz | 1910 MHz   |     | 1855 MHz                    | 1882.5 MHz | 1910 MHz   |
| LTE Band 25 | 10       | QPSK  | 1             | 0         | 0   | 22.3                     | 22.3       | 22.3       | 0   | 20.4                        | 20.6       | 20.5       |
|             |          |       | 1             | 25        | 0   | 21.9                     | 22.0       | 22.1       | 0   | 20.1                        | 20.2       | 20.4       |
|             |          |       | 1             | 49        | 0   | 22.1                     | 22.2       | 22.1       | 0   | 20.3                        | 20.5       | 20.4       |
|             |          |       | 25            | 0         | 0   | 22.1                     | 22.1       | 22.3       | 0   | 20.3                        | 20.2       | 20.5       |
|             |          |       | 25            | 12        | 0   | 22.0                     | 22.1       | 22.2       | 0   | 20.2                        | 20.2       | 20.5       |
|             |          |       | 25            | 25        | 0   | 22.0                     | 22.0       | 22.2       | 0   | 20.2                        | 20.3       | 20.5       |
|             |          |       | 50            | 0         | 0   | 22.0                     | 22.1       | 22.2       | 0   | 20.2                        | 20.3       | 20.5       |
|             |          | 16QAM | 1             | 0         | 0   | 22.3                     | 22.7       | 22.2       | 0   | 20.4                        | 20.9       | 20.4       |
|             |          |       | 1             | 25        | 0   | 22.0                     | 22.4       | 22.1       | 0   | 20.2                        | 20.5       | 20.4       |
|             |          |       | 1             | 49        | 0   | 22.1                     | 22.5       | 22.0       | 0   | 20.3                        | 20.8       | 20.4       |
|             |          |       | 25            | 0         | 0   | 22.1                     | 22.1       | 22.3       | 0   | 20.3                        | 20.3       | 20.5       |
|             |          |       | 25            | 12        | 0   | 22.1                     | 22.1       | 22.2       | 0   | 20.3                        | 20.2       | 20.6       |
|             |          |       | 25            | 25        | 0   | 22.0                     | 22.1       | 22.2       | 0   | 20.2                        | 20.3       | 20.5       |
|             |          |       | 50            | 0         | 0   | 22.1                     | 22.1       | 22.2       | 0   | 20.3                        | 20.4       | 20.5       |
|             |          | 64QAM | 1             | 0         | 0   | 21.7                     | 22.0       | 22.1       | 0   | 19.9                        | 20.2       | 20.1       |
|             |          |       | 1             | 25        | 0   | 21.5                     | 21.6       | 21.9       | 0   | 19.7                        | 19.9       | 20.2       |
|             |          |       | 1             | 49        | 0   | 21.7                     | 21.8       | 21.8       | 0   | 19.7                        | 20.1       | 20.2       |
|             |          |       | 25            | 0         | 1   | 20.8                     | 20.8       | 21.1       | 0   | 19.9                        | 19.9       | 20.2       |
|             |          |       | 25            | 12        | 1   | 20.8                     | 20.8       | 21.1       | 0   | 19.9                        | 19.9       | 20.2       |
|             |          |       | 25            | 25        | 1   | 20.7                     | 20.8       | 21.1       | 0   | 19.9                        | 19.9       | 20.3       |
|             |          |       | 50            | 0         | 1   | 20.7                     | 20.8       | 21.1       | 0   | 19.8                        | 20.0       | 20.3       |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |            |            | MPR | Reduced Meas. Avg Pwr (dBm) |            |            |
|             |          |       |               |           |     | 1852.5 MHz               | 1882.5 MHz | 1912.5 MHz |     | 1852.5 MHz                  | 1882.5 MHz | 1912.5 MHz |
| LTE Band 25 | 5        | QPSK  | 1             | 0         | 0   | 22.0                     | 21.9       | 22.2       | 0   | 20.3                        | 20.2       | 20.5       |
|             |          |       | 1             | 12        | 0   | 22.0                     | 21.8       | 22.1       | 0   | 20.3                        | 20.2       | 20.5       |
|             |          |       | 1             | 24        | 0   | 22.0                     | 21.9       | 22.1       | 0   | 20.3                        | 20.2       | 20.5       |
|             |          |       | 12            | 0         | 0   | 22.0                     | 21.9       | 22.1       | 0   | 20.2                        | 20.2       | 20.4       |
|             |          |       | 12            | 7         | 0   | 22.0                     | 21.9       | 22.1       | 0   | 20.3                        | 20.3       | 20.4       |
|             |          |       | 12            | 13        | 0   | 21.9                     | 21.9       | 22.1       | 0   | 20.3                        | 20.3       | 20.4       |
|             |          |       | 25            | 0         | 0   | 22.0                     | 21.9       | 22.1       | 0   | 20.3                        | 20.3       | 20.4       |
|             |          | 16QAM | 1             | 0         | 0   | 22.1                     | 22.4       | 22.3       | 0   | 20.4                        | 20.7       | 20.6       |
|             |          |       | 1             | 12        | 0   | 22.0                     | 22.4       | 22.2       | 0   | 20.4                        | 20.8       | 20.6       |
|             |          |       | 1             | 24        | 0   | 22.1                     | 22.4       | 22.3       | 0   | 20.4                        | 20.8       | 20.6       |
|             |          |       | 12            | 0         | 0   | 22.1                     | 22.1       | 22.2       | 0   | 20.3                        | 20.3       | 20.5       |
|             |          |       | 12            | 7         | 0   | 22.0                     | 22.0       | 22.2       | 0   | 20.4                        | 20.5       | 20.5       |
|             |          |       | 12            | 13        | 0   | 22.0                     | 22.0       | 22.2       | 0   | 20.4                        | 20.5       | 20.5       |
|             |          |       | 25            | 0         | 0   | 21.9                     | 21.9       | 22.1       | 0   | 20.3                        | 20.3       | 20.5       |
|             |          | 64QAM | 1             | 0         | 0   | 22.0                     | 21.7       | 22.3       | 0   | 19.9                        | 19.9       | 20.3       |
|             |          |       | 1             | 12        | 0   | 21.9                     | 21.7       | 22.3       | 0   | 20.0                        | 20.0       | 20.2       |
|             |          |       | 1             | 24        | 0   | 22.0                     | 21.8       | 22.3       | 0   | 20.1                        | 20.1       | 20.3       |
|             |          |       | 12            | 0         | 1   | 20.8                     | 20.8       | 21.2       | 0   | 19.9                        | 19.9       | 20.3       |
|             |          |       | 12            | 7         | 1   | 20.8                     | 20.8       | 21.1       | 0   | 19.9                        | 20.0       | 20.3       |
|             |          |       | 12            | 13        | 1   | 20.8                     | 20.8       | 21.1       | 0   | 20.0                        | 20.0       | 20.2       |
|             |          |       | 25            | 0         | 1   | 20.9                     | 20.8       | 21.1       | 0   | 20.0                        | 20.0       | 20.2       |

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

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |            |            | MPR | Reduced Meas. Avg Pwr (dBm) |            |            |
|-------------|----------|-------|---------------|-----------|-----|--------------------------|------------|------------|-----|-----------------------------|------------|------------|
|             |          |       |               |           |     | 1851.5 MHz               | 1882.5 MHz | 1913.5 MHz |     | 1851.5 MHz                  | 1882.5 MHz | 1913.5 MHz |
| LTE Band 25 | 3        | QPSK  | 1             | 0         | 0   | 22.3                     | 22.2       | 22.4       | 0   | 20.2                        | 20.2       | 20.4       |
|             |          |       | 1             | 8         | 0   | 22.3                     | 22.3       | 22.4       | 0   | 20.2                        | 20.4       | 20.5       |
|             |          |       | 1             | 14        | 0   | 22.2                     | 22.2       | 22.3       | 0   | 20.2                        | 20.2       | 20.4       |
|             |          |       | 8             | 0         | 0   | 22.3                     | 22.2       | 22.4       | 0   | 20.2                        | 20.2       | 20.4       |
|             |          |       | 8             | 4         | 0   | 22.3                     | 22.2       | 22.4       | 0   | 20.2                        | 20.3       | 20.4       |
|             |          |       | 8             | 7         | 0   | 22.2                     | 22.2       | 22.4       | 0   | 20.2                        | 20.3       | 20.4       |
|             |          |       | 15            | 0         | 0   | 22.2                     | 22.2       | 22.4       | 0   | 20.2                        | 20.3       | 20.4       |
|             |          | 16QAM | 1             | 0         | 0   | 22.3                     | 22.6       | 22.3       | 0   | 20.3                        | 20.5       | 20.3       |
|             |          |       | 1             | 8         | 0   | 22.4                     | 22.7       | 22.4       | 0   | 20.3                        | 20.7       | 20.4       |
|             |          |       | 1             | 14        | 0   | 22.3                     | 22.5       | 22.2       | 0   | 20.3                        | 20.6       | 20.3       |
|             |          |       | 8             | 0         | 0   | 22.3                     | 22.3       | 22.5       | 0   | 20.2                        | 20.2       | 20.6       |
|             |          |       | 8             | 4         | 0   | 22.3                     | 22.3       | 22.5       | 0   | 20.2                        | 20.4       | 20.5       |
|             |          |       | 8             | 7         | 0   | 22.3                     | 22.3       | 22.5       | 0   | 20.2                        | 20.4       | 20.5       |
|             |          |       | 15            | 0         | 0   | 22.2                     | 22.2       | 22.4       | 0   | 20.1                        | 20.3       | 20.5       |
|             |          | 64QAM | 1             | 0         | 0   | 21.6                     | 21.8       | 22.1       | 0   | 19.9                        | 20.0       | 19.9       |
|             |          |       | 1             | 8         | 0   | 21.6                     | 21.8       | 22.1       | 0   | 19.8                        | 20.0       | 19.9       |
|             |          |       | 1             | 14        | 0   | 21.7                     | 21.6       | 22.1       | 0   | 20.0                        | 20.0       | 20.1       |
|             |          |       | 8             | 0         | 1   | 20.8                     | 20.8       | 21.1       | 0   | 19.9                        | 20.0       | 20.2       |
|             |          |       | 8             | 4         | 1   | 20.8                     | 20.8       | 21.1       | 0   | 19.9                        | 20.0       | 20.2       |
|             |          |       | 8             | 7         | 1   | 20.8                     | 20.8       | 21.1       | 0   | 20.0                        | 20.0       | 20.2       |
|             |          |       | 15            | 0         | 1   | 20.8                     | 20.8       | 21.1       | 0   | 19.8                        | 20.0       | 20.1       |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |            |            | MPR | Reduced Meas. Avg Pwr (dBm) |            |            |
|             |          |       |               |           |     | 1850.7 MHz               | 1882.5 MHz | 1914.3 MHz |     | 1850.7 MHz                  | 1882.5 MHz | 1914.3 MHz |
| LTE Band 25 | 1.4      | QPSK  | 1             | 0         | 0   | 22.1                     | 22.3       | 22.4       | 0   | 20.1                        | 20.3       | 20.4       |
|             |          |       | 1             | 3         | 0   | 22.2                     | 22.4       | 22.4       | 0   | 20.1                        | 20.4       | 20.4       |
|             |          |       | 1             | 5         | 0   | 22.1                     | 22.3       | 22.3       | 0   | 20.1                        | 20.4       | 20.4       |
|             |          |       | 3             | 0         | 0   | 22.1                     | 22.4       | 22.3       | 0   | 20.1                        | 20.3       | 20.4       |
|             |          |       | 3             | 1         | 0   | 22.2                     | 22.4       | 22.4       | 0   | 20.2                        | 20.4       | 20.4       |
|             |          |       | 3             | 3         | 0   | 22.2                     | 22.4       | 22.4       | 0   | 20.1                        | 20.5       | 20.4       |
|             |          |       | 6             | 0         | 0   | 22.1                     | 22.3       | 22.3       | 0   | 20.1                        | 20.4       | 20.4       |
|             |          | 16QAM | 1             | 0         | 0   | 22.2                     | 22.7       | 22.4       | 0   | 20.1                        | 20.6       | 20.5       |
|             |          |       | 1             | 3         | 0   | 22.2                     | 22.7       | 22.5       | 0   | 20.2                        | 20.7       | 20.5       |
|             |          |       | 1             | 5         | 0   | 22.2                     | 22.7       | 22.4       | 0   | 20.1                        | 20.7       | 20.5       |
|             |          |       | 3             | 0         | 0   | 22.3                     | 22.5       | 22.4       | 0   | 20.3                        | 20.5       | 20.5       |
|             |          |       | 3             | 1         | 0   | 22.4                     | 22.6       | 22.4       | 0   | 20.3                        | 20.5       | 20.5       |
|             |          |       | 3             | 3         | 0   | 22.4                     | 22.5       | 22.4       | 0   | 20.3                        | 20.6       | 20.5       |
|             |          |       | 6             | 0         | 0   | 22.3                     | 22.2       | 22.5       | 0   | 20.3                        | 20.3       | 20.5       |
|             |          | 64QAM | 1             | 0         | 0   | 21.7                     | 22.0       | 22.0       | 0   | 19.4                        | 20.1       | 20.1       |
|             |          |       | 1             | 3         | 0   | 21.9                     | 22.0       | 22.3       | 0   | 19.4                        | 20.3       | 20.2       |
|             |          |       | 1             | 5         | 0   | 21.9                     | 22.2       | 22.3       | 0   | 19.4                        | 20.3       | 20.1       |
|             |          |       | 3             | 0         | 0   | 21.6                     | 21.9       | 22.0       | 0   | 19.6                        | 19.8       | 20.0       |
|             |          |       | 3             | 1         | 0   | 21.7                     | 21.8       | 21.9       | 0   | 19.6                        | 19.9       | 20.1       |
|             |          |       | 3             | 3         | 0   | 21.6                     | 21.9       | 21.9       | 0   | 19.6                        | 19.9       | 20.0       |
|             |          |       | 6             | 0         | 1   | 20.8                     | 20.9       | 21.1       | 0   | 19.7                        | 20.0       | 20.1       |

**LTE Band 26 Measured Results**

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |           |           |
|-------------|----------|-------|---------------|-----------|-----|--------------------------|-----------|-----------|
|             |          |       |               |           |     | 821.5 MHz                | 831.5 MHz | 841.5 MHz |
| LTE Band 26 | 15       | QPSK  | 1             | 0         | 0   |                          | 22.4      |           |
|             |          |       | 1             | 37        | 0   |                          | 22.4      |           |
|             |          |       | 1             | 74        | 0   |                          | 22.1      |           |
|             |          |       | 36            | 0         | 0   |                          | 22.5      |           |
|             |          |       | 36            | 20        | 0   |                          | 22.5      |           |
|             |          |       | 36            | 39        | 0   |                          | 22.4      |           |
|             |          |       | 75            | 0         | 0   |                          | 22.4      |           |
|             |          | 16QAM | 1             | 0         | 0   |                          | 22.4      |           |
|             |          |       | 1             | 37        | 0   |                          | 22.3      |           |
|             |          |       | 1             | 74        | 0   |                          | 22.1      |           |
|             |          |       | 36            | 0         | 0   |                          | 22.5      |           |
|             |          |       | 36            | 20        | 0   |                          | 22.5      |           |
|             |          |       | 36            | 39        | 0   |                          | 22.3      |           |
|             |          |       | 75            | 0         | 0   |                          | 22.4      |           |
|             |          | 64QAM | 1             | 0         | 0   |                          | 22.3      |           |
|             |          |       | 1             | 37        | 0   |                          | 22.2      |           |
|             |          |       | 1             | 74        | 0   |                          | 22.1      |           |
|             |          |       | 36            | 0         | 1   |                          | 21.3      |           |
|             |          |       | 36            | 20        | 1   |                          | 21.3      |           |
|             |          |       | 36            | 39        | 1   |                          | 21.2      |           |
|             |          |       | 75            | 0         | 1   |                          | 21.2      |           |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |           |           |
|             |          |       |               |           |     | 819 MHz                  | 831.5 MHz | 844 MHz   |
| LTE Band 26 | 10       | QPSK  | 1             | 0         | 0   | 22.6                     | 22.7      | 22.4      |
|             |          |       | 1             | 25        | 0   | 22.4                     | 22.6      | 22.3      |
|             |          |       | 1             | 49        | 0   | 22.3                     | 22.5      | 22.2      |
|             |          |       | 25            | 0         | 0   | 22.4                     | 22.7      | 22.4      |
|             |          |       | 25            | 12        | 0   | 22.4                     | 22.8      | 22.3      |
|             |          |       | 25            | 25        | 0   | 22.4                     | 22.6      | 22.2      |
|             |          |       | 50            | 0         | 0   | 22.4                     | 22.7      | 22.3      |
|             |          | 16QAM | 1             | 0         | 0   | 22.9                     | 22.7      | 22.5      |
|             |          |       | 1             | 25        | 0   | 22.8                     | 22.6      | 22.3      |
|             |          |       | 1             | 49        | 0   | 22.7                     | 22.5      | 22.3      |
|             |          |       | 25            | 0         | 0   | 22.4                     | 22.8      | 22.5      |
|             |          |       | 25            | 12        | 0   | 22.5                     | 22.7      | 22.4      |
|             |          |       | 25            | 25        | 0   | 22.4                     | 22.7      | 22.4      |
|             |          |       | 50            | 0         | 0   | 22.5                     | 22.7      | 22.4      |
|             |          | 64QAM | 1             | 0         | 0   | 22.0                     | 22.2      | 22.4      |
|             |          |       | 1             | 25        | 0   | 22.0                     | 22.1      | 22.3      |
|             |          |       | 1             | 49        | 0   | 22.0                     | 22.0      | 22.2      |
|             |          |       | 25            | 0         | 1   | 21.1                     | 21.2      | 21.2      |
|             |          |       | 25            | 12        | 1   | 21.2                     | 21.2      | 21.1      |
|             |          |       | 25            | 25        | 1   | 21.1                     | 21.2      | 21.1      |
|             |          |       | 50            | 0         | 1   | 21.1                     | 21.2      | 21.1      |

**Note(s):**

15 MHz Bandwidth does not support at least three non-overlapping channels. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing per KDB 941225 D05 SAR for LTE Devices

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

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |           |           |
|-------------|----------|-------|---------------|-----------|-----|--------------------------|-----------|-----------|
|             |          |       |               |           |     | 816.5 MHz                | 831.5 MHz | 846.5 MHz |
| LTE Band 26 | 5        | QPSK  | 1             | 0         | 0   | 22.6                     | 22.8      | 22.3      |
|             |          |       | 1             | 12        | 0   | 22.4                     | 22.7      | 22.3      |
|             |          |       | 1             | 24        | 0   | 22.4                     | 22.7      | 22.3      |
|             |          |       | 12            | 0         | 0   | 22.5                     | 22.7      | 22.3      |
|             |          |       | 12            | 7         | 0   | 22.4                     | 22.7      | 22.4      |
|             |          |       | 12            | 13        | 0   | 22.4                     | 22.7      | 22.4      |
|             |          |       | 25            | 0         | 0   | 22.4                     | 22.7      | 22.4      |
|             |          | 16QAM | 1             | 0         | 0   | 22.7                     | 22.9      | 22.9      |
|             |          |       | 1             | 12        | 0   | 22.5                     | 22.8      | 22.9      |
|             |          |       | 1             | 24        | 0   | 22.5                     | 22.8      | 22.9      |
|             |          |       | 12            | 0         | 0   | 22.6                     | 22.8      | 22.5      |
|             |          |       | 12            | 7         | 0   | 22.5                     | 22.8      | 22.3      |
|             |          |       | 12            | 13        | 0   | 22.4                     | 22.7      | 22.2      |
|             |          |       | 25            | 0         | 0   | 22.4                     | 22.7      | 22.4      |
|             |          | 64QAM | 1             | 0         | 0   | 22.1                     | 22.2      | 22.3      |
|             |          |       | 1             | 12        | 0   | 22.0                     | 22.3      | 22.2      |
|             |          |       | 1             | 24        | 0   | 22.0                     | 22.2      | 22.2      |
|             |          |       | 12            | 0         | 1   | 21.1                     | 21.2      | 21.2      |
|             |          |       | 12            | 7         | 1   | 21.0                     | 21.2      | 21.1      |
|             |          |       | 12            | 13        | 1   | 21.0                     | 21.1      | 21.0      |
|             |          |       | 25            | 0         | 1   | 21.0                     | 21.2      | 21.2      |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |           |           |
|             |          |       |               |           |     | 815.5 MHz                | 831.5 MHz | 847.5 MHz |
| LTE Band 26 | 3        | QPSK  | 1             | 0         | 0   | 22.7                     | 22.5      | 22.3      |
|             |          |       | 1             | 8         | 0   | 22.8                     | 22.6      | 22.4      |
|             |          |       | 1             | 14        | 0   | 22.5                     | 22.5      | 22.3      |
|             |          |       | 8             | 0         | 0   | 22.7                     | 22.6      | 22.4      |
|             |          |       | 8             | 4         | 0   | 22.7                     | 22.6      | 22.4      |
|             |          |       | 8             | 7         | 0   | 22.7                     | 22.6      | 22.3      |
|             |          |       | 15            | 0         | 0   | 22.7                     | 22.6      | 22.4      |
|             |          | 16QAM | 1             | 0         | 0   | 23.0                     | 22.5      | 22.3      |
|             |          |       | 1             | 8         | 0   | 23.0                     | 22.5      | 22.5      |
|             |          |       | 1             | 14        | 0   | 22.9                     | 22.4      | 22.4      |
|             |          |       | 8             | 0         | 0   | 22.8                     | 22.7      | 22.1      |
|             |          |       | 8             | 4         | 0   | 22.8                     | 22.7      | 22.1      |
|             |          |       | 8             | 7         | 0   | 22.8                     | 22.7      | 22.1      |
|             |          |       | 15            | 0         | 0   | 22.7                     | 22.6      | 22.0      |
|             |          | 64QAM | 1             | 0         | 0   | 22.2                     | 22.3      | 22.2      |
|             |          |       | 1             | 8         | 0   | 22.1                     | 22.3      | 22.1      |
|             |          |       | 1             | 14        | 0   | 22.0                     | 22.3      | 22.2      |
|             |          |       | 8             | 0         | 1   | 21.2                     | 21.2      | 21.0      |
|             |          |       | 8             | 4         | 1   | 21.2                     | 21.2      | 21.0      |
|             |          |       | 8             | 7         | 1   | 21.2                     | 21.2      | 21.0      |
|             |          |       | 15            | 0         | 1   | 21.2                     | 21.2      | 21.0      |

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

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |           |           |
|-------------|----------|-------|---------------|-----------|-----|--------------------------|-----------|-----------|
|             |          |       |               |           |     | 814.7 MHz                | 831.5 MHz | 848.3 MHz |
| LTE Band 26 | 1.4      | QPSK  | 1             | 0         | 0   | 22.6                     | 22.7      | 22.2      |
|             |          |       | 1             | 3         | 0   | 22.7                     | 22.7      | 22.3      |
|             |          |       | 1             | 5         | 0   | 22.6                     | 22.7      | 22.2      |
|             |          |       | 3             | 0         | 0   | 22.6                     | 22.7      | 22.3      |
|             |          |       | 3             | 1         | 0   | 22.7                     | 22.7      | 22.3      |
|             |          |       | 3             | 3         | 0   | 22.7                     | 22.7      | 22.3      |
|             |          | 16QAM | 6             | 0         | 0   | 22.6                     | 22.7      | 22.2      |
|             |          |       | 1             | 0         | 0   | 23.0                     | 22.8      | 22.3      |
|             |          |       | 1             | 3         | 0   | 23.0                     | 22.8      | 22.3      |
|             |          |       | 1             | 5         | 0   | 23.0                     | 22.8      | 22.3      |
|             |          |       | 3             | 0         | 0   | 22.8                     | 22.7      | 22.4      |
|             |          |       | 3             | 1         | 0   | 22.9                     | 22.8      | 22.5      |
|             |          |       | 3             | 3         | 0   | 22.8                     | 22.8      | 22.5      |
|             |          |       | 6             | 0         | 0   | 22.5                     | 22.8      | 22.2      |
|             |          | 64QAM | 1             | 0         | 0   | 22.2                     | 22.1      | 22.1      |
|             |          |       | 1             | 3         | 0   | 22.3                     | 22.2      | 22.3      |
|             |          |       | 1             | 5         | 0   | 22.2                     | 22.0      | 22.1      |
|             |          |       | 3             | 0         | 0   | 22.0                     | 22.0      | 22.0      |
|             |          |       | 3             | 1         | 0   | 22.0                     | 22.0      | 22.0      |
|             |          |       | 3             | 3         | 0   | 22.0                     | 22.0      | 22.0      |
|             |          |       | 6             | 0         | 1   | 21.2                     | 21.1      | 21.0      |

**LTE Band 38 Measured Results**

SAR for LTE Band 38 (Frequency range: 2570-2620 MHz) is covered by LTE Band 41 (Frequency range: 2496-2690 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

**LTE Band 41 Measured Results**

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |            |          |            |          |
|-------------|----------|-------|---------------|-----------|-----|--------------------------|------------|----------|------------|----------|
|             |          |       |               |           |     | 2506 MHz                 | 2549.5 MHz | 2593 MHz | 2636.5 MHz | 2680 MHz |
| LTE Band 41 | 20       | QPSK  | 1             | 0         | 0   | 20.4                     | 20.8       | 20.5     | 20.9       | 20.3     |
|             |          |       | 1             | 49        | 0   | 20.2                     | 20.6       | 20.3     | 20.5       | 20.1     |
|             |          |       | 1             | 99        | 0   | 20.2                     | 20.6       | 20.2     | 20.5       | 20.1     |
|             |          |       | 50            | 0         | 0   | 20.3                     | 20.8       | 20.3     | 20.7       | 20.2     |
|             |          |       | 50            | 24        | 0   | 20.3                     | 20.7       | 20.4     | 20.6       | 20.4     |
|             |          |       | 50            | 50        | 0   | 20.2                     | 20.6       | 20.3     | 20.5       | 20.4     |
|             |          |       | 100           | 0         | 0   | 20.4                     | 20.7       | 20.5     | 20.6       | 20.4     |
|             |          | 16QAM | 1             | 0         | 0   | 20.4                     | 20.9       | 20.4     | 20.8       | 20.7     |
|             |          |       | 1             | 49        | 0   | 20.3                     | 20.7       | 20.3     | 20.5       | 20.5     |
|             |          |       | 1             | 99        | 0   | 20.2                     | 20.7       | 20.2     | 20.4       | 20.4     |
|             |          |       | 50            | 0         | 0   | 20.4                     | 20.8       | 20.5     | 20.5       | 20.5     |
|             |          |       | 50            | 24        | 0   | 20.4                     | 20.8       | 20.5     | 20.4       | 20.4     |
|             |          |       | 50            | 50        | 0   | 20.4                     | 20.7       | 20.5     | 20.3       | 20.4     |
|             |          |       | 100           | 0         | 0   | 20.4                     | 20.7       | 20.5     | 20.4       | 20.4     |
|             |          | 64QAM | 1             | 0         | 0   | 20.0                     | 20.0       | 20.0     | 20.3       | 20.0     |
|             |          |       | 1             | 49        | 0   | 19.9                     | 19.9       | 19.9     | 20.0       | 19.9     |
|             |          |       | 1             | 99        | 0   | 19.7                     | 19.9       | 19.8     | 20.0       | 19.8     |
|             |          |       | 50            | 0         | 0   | 20.0                     | 20.4       | 20.4     | 20.5       | 20.2     |
|             |          |       | 50            | 24        | 0   | 20.0                     | 20.5       | 20.5     | 20.5       | 20.4     |
|             |          |       | 50            | 50        | 0   | 20.0                     | 20.4       | 20.4     | 20.4       | 20.3     |
|             |          |       | 100           | 0         | 0   | 20.0                     | 20.4       | 20.4     | 20.4       | 20.3     |
| LTE Band 41 | 15       | QPSK  | 1             | 0         | 0   | 20.0                     | 20.5       | 20.4     | 20.4       | 20.3     |
|             |          |       | 1             | 37        | 0   | 19.8                     | 20.4       | 20.2     | 20.1       | 20.1     |
|             |          |       | 1             | 74        | 0   | 19.8                     | 20.3       | 20.2     | 20.0       | 20.1     |
|             |          |       | 36            | 0         | 0   | 20.0                     | 20.5       | 20.3     | 20.3       | 20.1     |
|             |          |       | 36            | 20        | 0   | 20.1                     | 20.4       | 20.4     | 20.3       | 20.2     |
|             |          |       | 36            | 39        | 0   | 20.0                     | 20.4       | 20.3     | 20.2       | 20.1     |
|             |          |       | 75            | 0         | 0   | 20.0                     | 20.4       | 20.3     | 20.2       | 20.0     |
|             |          | 16QAM | 1             | 0         | 0   | 20.0                     | 20.5       | 20.4     | 20.5       | 20.4     |
|             |          |       | 1             | 37        | 0   | 19.9                     | 20.3       | 20.3     | 20.2       | 20.4     |
|             |          |       | 1             | 74        | 0   | 19.8                     | 20.3       | 20.2     | 20.1       | 20.3     |
|             |          |       | 36            | 0         | 0   | 20.0                     | 20.4       | 20.3     | 20.4       | 20.4     |
|             |          |       | 36            | 20        | 0   | 20.1                     | 20.4       | 20.4     | 20.3       | 20.4     |
|             |          |       | 36            | 39        | 0   | 20.0                     | 20.3       | 20.3     | 20.2       | 20.2     |
|             |          |       | 75            | 0         | 0   | 20.1                     | 20.4       | 20.2     | 20.3       | 20.4     |
|             |          | 64QAM | 1             | 0         | 0   | 20.3                     | 20.2       | 19.9     | 20.3       | 20.2     |
|             |          |       | 1             | 37        | 0   | 20.3                     | 20.3       | 19.8     | 20.0       | 20.2     |
|             |          |       | 1             | 74        | 0   | 20.1                     | 20.2       | 19.7     | 19.9       | 20.3     |
|             |          |       | 36            | 0         | 0   | 20.0                     | 20.3       | 20.3     | 20.4       | 20.2     |
|             |          |       | 36            | 20        | 0   | 20.0                     | 20.2       | 20.3     | 20.5       | 20.3     |
|             |          |       | 36            | 39        | 0   | 19.9                     | 20.3       | 20.3     | 20.4       | 20.3     |
|             |          |       | 75            | 0         | 0   | 20.0                     | 20.4       | 20.3     | 20.4       | 20.3     |

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

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |            |          |            |          |
|-------------|----------|-------|---------------|-----------|-----|--------------------------|------------|----------|------------|----------|
|             |          |       |               |           |     | 2506 MHz                 | 2549.5 MHz | 2593 MHz | 2636.5 MHz | 2680 MHz |
| LTE Band 41 | 10       | QPSK  | 1             | 0         | 0   | 20.1                     | 20.7       | 20.4     | 20.5       | 20.4     |
|             |          |       | 1             | 25        | 0   | 20.1                     | 20.6       | 20.4     | 20.4       | 20.4     |
|             |          |       | 1             | 49        | 0   | 20.1                     | 20.6       | 20.3     | 20.3       | 20.3     |
|             |          |       | 25            | 0         | 0   | 20.3                     | 20.6       | 20.5     | 20.5       | 20.4     |
|             |          |       | 25            | 12        | 0   | 20.3                     | 20.5       | 20.5     | 20.5       | 20.4     |
|             |          |       | 25            | 25        | 0   | 20.2                     | 20.6       | 20.5     | 20.5       | 20.4     |
|             |          |       | 50            | 0         | 0   | 20.3                     | 20.6       | 20.5     | 20.6       | 20.3     |
|             |          | 16QAM | 1             | 0         | 0   | 20.1                     | 20.6       | 20.6     | 20.6       | 20.5     |
|             |          |       | 1             | 25        | 0   | 20.0                     | 20.6       | 20.6     | 20.4       | 20.4     |
|             |          |       | 1             | 49        | 0   | 20.0                     | 20.5       | 20.5     | 20.4       | 20.4     |
|             |          |       | 25            | 0         | 0   | 20.3                     | 20.6       | 20.6     | 20.6       | 20.4     |
|             |          |       | 25            | 12        | 0   | 20.2                     | 20.6       | 20.6     | 20.6       | 20.4     |
|             |          |       | 25            | 25        | 0   | 20.2                     | 20.6       | 20.5     | 20.5       | 20.4     |
|             |          |       | 50            | 0         | 0   | 20.2                     | 20.7       | 20.6     | 20.6       | 20.4     |
|             |          | 64QAM | 1             | 0         | 0   | 20.4                     | 20.1       | 20.0     | 20.3       | 20.1     |
|             |          |       | 1             | 25        | 0   | 20.5                     | 20.1       | 20.0     | 20.2       | 20.0     |
|             |          |       | 1             | 49        | 0   | 20.4                     | 20.1       | 19.9     | 20.2       | 20.0     |
|             |          |       | 25            | 0         | 0   | 20.0                     | 20.3       | 20.3     | 20.4       | 20.2     |
|             |          |       | 25            | 12        | 0   | 20.0                     | 20.2       | 20.3     | 20.5       | 20.3     |
|             |          |       | 25            | 25        | 0   | 19.9                     | 20.3       | 20.3     | 20.4       | 20.3     |
|             |          |       | 50            | 0         | 0   | 20.0                     | 20.4       | 20.3     | 20.4       | 20.3     |
| LTE Band 41 | 5        | QPSK  | 1             | 0         | 0   | 20.0                     | 20.4       | 20.1     | 20.0       | 19.8     |
|             |          |       | 1             | 12        | 0   | 19.9                     | 20.3       | 20.0     | 20.0       | 19.8     |
|             |          |       | 1             | 24        | 0   | 19.8                     | 20.2       | 20.0     | 19.9       | 19.7     |
|             |          |       | 12            | 0         | 0   | 20.0                     | 20.4       | 20.1     | 20.1       | 19.8     |
|             |          |       | 12            | 7         | 0   | 20.0                     | 20.4       | 20.1     | 20.1       | 19.9     |
|             |          |       | 12            | 13        | 0   | 19.9                     | 20.3       | 20.1     | 20.0       | 19.8     |
|             |          |       | 25            | 0         | 0   | 20.0                     | 20.4       | 20.1     | 20.1       | 19.8     |
|             |          | 16QAM | 1             | 0         | 0   | 19.9                     | 20.3       | 20.2     | 20.0       | 19.7     |
|             |          |       | 1             | 12        | 0   | 19.9                     | 20.4       | 20.2     | 19.9       | 19.8     |
|             |          |       | 1             | 24        | 0   | 19.8                     | 20.1       | 20.2     | 19.9       | 19.7     |
|             |          |       | 12            | 0         | 0   | 20.0                     | 20.3       | 20.2     | 20.1       | 19.7     |
|             |          |       | 12            | 7         | 0   | 20.0                     | 20.3       | 20.2     | 20.1       | 19.8     |
|             |          |       | 12            | 13        | 0   | 20.0                     | 20.2       | 20.2     | 20.1       | 19.8     |
|             |          |       | 25            | 0         | 0   | 20.0                     | 20.3       | 20.1     | 20.1       | 19.8     |
|             |          | 64QAM | 1             | 0         | 0   | 20.0                     | 20.6       | 20.7     | 20.9       | 20.5     |
|             |          |       | 1             | 12        | 0   | 20.1                     | 20.6       | 20.7     | 20.8       | 20.5     |
|             |          |       | 1             | 24        | 0   | 20.0                     | 20.6       | 20.7     | 20.8       | 20.5     |
|             |          |       | 12            | 0         | 0   | 20.0                     | 20.4       | 20.4     | 20.5       | 20.2     |
|             |          |       | 12            | 7         | 0   | 20.0                     | 20.5       | 20.5     | 20.5       | 20.4     |
|             |          |       | 12            | 13        | 0   | 20.0                     | 20.4       | 20.4     | 20.4       | 20.3     |
|             |          |       | 25            | 0         | 0   | 20.0                     | 20.4       | 20.4     | 20.4       | 20.3     |

**LTE Band 66 Measured Results**

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |          |            | MPR | Reduced Meas. Avg Pwr (dBm) |          |            |
|-------------|----------|-------|---------------|-----------|-----|--------------------------|----------|------------|-----|-----------------------------|----------|------------|
|             |          |       |               |           |     | 1720 MHz                 | 1745 MHz | 1770 MHz   |     | 1720 MHz                    | 1745 MHz | 1770 MHz   |
| LTE Band 66 | 20       | QPSK  | 1             | 0         | 0   | 24.3                     | 24.3     | 24.4       | 0   | 20.6                        | 20.6     | 20.4       |
|             |          |       | 1             | 49        | 0   | 24.2                     | 24.1     | 24.1       | 0   | 20.4                        | 20.3     | 20.3       |
|             |          |       | 1             | 99        | 0   | 24.0                     | 24.1     | 24.1       | 0   | 20.3                        | 20.3     | 20.3       |
|             |          |       | 50            | 0         | 1   | 23.3                     | 23.3     | 23.2       | 0   | 20.6                        | 20.5     | 20.4       |
|             |          |       | 50            | 24        | 1   | 23.2                     | 23.2     | 23.1       | 0   | 20.5                        | 20.4     | 20.4       |
|             |          |       | 50            | 50        | 1   | 23.1                     | 23.1     | 23.1       | 0   | 20.4                        | 20.5     | 20.4       |
|             |          |       | 100           | 0         | 1   | 23.2                     | 23.2     | 23.2       | 0   | 20.5                        | 20.4     | 20.3       |
|             |          | 16QAM | 1             | 0         | 1   | 23.7                     | 23.8     | 23.9       | 0   | 21.0                        | 21.0     | 20.9       |
|             |          |       | 1             | 49        | 1   | 23.6                     | 23.7     | 23.6       | 0   | 20.8                        | 20.7     | 20.9       |
|             |          |       | 1             | 99        | 1   | 23.4                     | 23.6     | 23.6       | 0   | 20.8                        | 20.8     | 20.9       |
|             |          |       | 50            | 0         | 2   | 22.3                     | 22.3     | 22.3       | 0   | 20.6                        | 20.5     | 20.4       |
|             |          |       | 50            | 24        | 2   | 22.2                     | 22.2     | 22.2       | 0   | 20.5                        | 20.4     | 20.5       |
|             |          |       | 50            | 50        | 2   | 22.1                     | 22.2     | 22.1       | 0   | 20.5                        | 20.5     | 20.4       |
|             |          |       | 100           | 0         | 2   | 22.2                     | 22.3     | 22.2       | 0   | 20.5                        | 20.5     | 20.4       |
|             |          | 64QAM | 1             | 0         | 2   | 21.9                     | 22.0     | 22.0       | 0   | 20.1                        | 19.9     | 19.9       |
|             |          |       | 1             | 49        | 2   | 21.7                     | 21.7     | 21.9       | 0   | 20.0                        | 19.7     | 19.6       |
|             |          |       | 1             | 99        | 2   | 21.6                     | 21.7     | 21.8       | 0   | 19.8                        | 19.8     | 19.7       |
|             |          |       | 50            | 0         | 3   | 20.9                     | 20.9     | 20.9       | 0   | 20.0                        | 19.9     | 19.8       |
|             |          |       | 50            | 24        | 3   | 20.8                     | 20.8     | 20.8       | 0   | 20.0                        | 19.9     | 19.8       |
|             |          |       | 50            | 50        | 3   | 20.8                     | 20.8     | 20.7       | 0   | 19.9                        | 19.9     | 19.8       |
|             |          |       | 100           | 0         | 3   | 20.8                     | 20.8     | 20.8       | 0   | 19.9                        | 19.9     | 19.8       |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |          |            | MPR | Reduced Meas. Avg Pwr (dBm) |          |            |
|             |          |       |               |           |     | 1717.5 MHz               | 1745 MHz | 1772.5 MHz |     | 1717.5 MHz                  | 1745 MHz | 1772.5 MHz |
| LTE Band 66 | 15       | QPSK  | 1             | 0         | 0   | 24.3                     | 24.4     | 24.5       | 0   | 20.6                        | 20.6     | 20.6       |
|             |          |       | 1             | 37        | 0   | 24.4                     | 24.1     | 24.2       | 0   | 20.4                        | 20.3     | 20.3       |
|             |          |       | 1             | 74        | 0   | 24.4                     | 24.1     | 24.2       | 0   | 20.4                        | 20.4     | 20.4       |
|             |          |       | 36            | 0         | 1   | 23.4                     | 23.3     | 23.4       | 0   | 20.5                        | 20.5     | 20.6       |
|             |          |       | 36            | 20        | 1   | 23.4                     | 23.3     | 23.3       | 0   | 20.5                        | 20.5     | 20.4       |
|             |          |       | 36            | 39        | 1   | 23.4                     | 23.2     | 23.2       | 0   | 20.4                        | 20.5     | 20.5       |
|             |          |       | 75            | 0         | 1   | 23.4                     | 23.2     | 23.3       | 0   | 20.4                        | 20.4     | 20.5       |
|             |          | 16QAM | 1             | 0         | 1   | 23.6                     | 23.3     | 23.5       | 0   | 21.0                        | 20.9     | 20.9       |
|             |          |       | 1             | 37        | 1   | 23.8                     | 23.1     | 23.0       | 0   | 20.7                        | 20.7     | 20.7       |
|             |          |       | 1             | 74        | 1   | 23.8                     | 23.0     | 23.2       | 0   | 20.8                        | 20.7     | 20.9       |
|             |          |       | 36            | 0         | 2   | 22.5                     | 22.3     | 22.4       | 0   | 20.5                        | 20.5     | 20.6       |
|             |          |       | 36            | 20        | 2   | 22.5                     | 22.3     | 22.3       | 0   | 20.4                        | 20.4     | 20.4       |
|             |          |       | 36            | 39        | 2   | 22.5                     | 22.2     | 22.2       | 0   | 20.4                        | 20.4     | 20.4       |
|             |          |       | 75            | 0         | 2   | 22.5                     | 22.2     | 22.3       | 0   | 20.5                        | 20.4     | 20.5       |
|             |          | 64QAM | 1             | 0         | 2   | 22.0                     | 21.8     | 22.0       | 0   | 19.7                        | 19.9     | 20.0       |
|             |          |       | 1             | 37        | 2   | 21.8                     | 21.6     | 21.7       | 0   | 19.7                        | 19.7     | 19.8       |
|             |          |       | 1             | 74        | 2   | 21.9                     | 21.4     | 21.8       | 0   | 19.6                        | 19.8     | 19.8       |
|             |          |       | 36            | 0         | 3   | 21.1                     | 20.9     | 21.0       | 0   | 20.0                        | 19.9     | 20.0       |
|             |          |       | 36            | 20        | 3   | 21.0                     | 20.9     | 20.9       | 0   | 20.0                        | 19.9     | 20.0       |
|             |          |       | 36            | 39        | 3   | 21.0                     | 20.8     | 20.7       | 0   | 19.9                        | 19.9     | 19.9       |
|             |          |       | 75            | 0         | 3   | 21.0                     | 20.8     | 20.9       | 0   | 19.9                        | 19.9     | 19.9       |

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

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |          |            | MPR | Reduced Meas. Avg Pwr (dBm) |          |            |
|-------------|----------|-------|---------------|-----------|-----|--------------------------|----------|------------|-----|-----------------------------|----------|------------|
|             |          |       |               |           |     | 1715 MHz                 | 1745 MHz | 1775 MHz   |     | 1715 MHz                    | 1745 MHz | 1775 MHz   |
| LTE Band 66 | 10       | QPSK  | 1             | 0         | 0   | 24.3                     | 24.3     | 24.4       | 0   | 20.5                        | 20.4     | 20.4       |
|             |          |       | 1             | 25        | 0   | 24.3                     | 24.1     | 24.1       | 0   | 20.4                        | 20.2     | 20.4       |
|             |          |       | 1             | 49        | 0   | 24.4                     | 24.1     | 23.8       | 0   | 20.3                        | 20.3     | 20.4       |
|             |          |       | 25            | 0         | 1   | 23.5                     | 23.3     | 23.3       | 0   | 20.5                        | 20.4     | 20.4       |
|             |          |       | 25            | 12        | 1   | 23.5                     | 23.2     | 23.3       | 0   | 20.4                        | 20.3     | 20.5       |
|             |          |       | 25            | 25        | 1   | 23.4                     | 23.1     | 23.1       | 0   | 20.4                        | 20.4     | 20.4       |
|             |          |       | 50            | 0         | 1   | 23.4                     | 23.3     | 23.2       | 0   | 20.4                        | 20.4     | 20.4       |
|             |          | 16QAM | 1             | 0         | 1   | 23.4                     | 23.3     | 23.3       | 0   | 20.5                        | 20.5     | 20.4       |
|             |          |       | 1             | 25        | 1   | 23.4                     | 23.2     | 23.1       | 0   | 20.3                        | 20.3     | 20.3       |
|             |          |       | 1             | 49        | 1   | 23.5                     | 23.1     | 22.7       | 0   | 20.3                        | 20.4     | 20.3       |
|             |          |       | 25            | 0         | 2   | 22.6                     | 22.4     | 22.4       | 0   | 20.5                        | 20.5     | 20.4       |
|             |          |       | 25            | 12        | 2   | 22.5                     | 22.3     | 22.3       | 0   | 20.5                        | 20.4     | 20.5       |
|             |          |       | 25            | 25        | 2   | 22.5                     | 22.3     | 22.2       | 0   | 20.4                        | 20.5     | 20.4       |
|             |          |       | 50            | 0         | 2   | 22.5                     | 22.3     | 22.2       | 0   | 20.5                        | 20.4     | 20.5       |
|             |          | 64QAM | 1             | 0         | 2   | 21.9                     | 21.8     | 21.6       | 0   | 19.7                        | 19.9     | 19.8       |
|             |          |       | 1             | 25        | 2   | 21.8                     | 21.7     | 21.6       | 0   | 19.7                        | 19.8     | 19.8       |
|             |          |       | 1             | 49        | 2   | 21.9                     | 21.8     | 21.8       | 0   | 19.7                        | 19.8     | 19.8       |
|             |          |       | 25            | 0         | 3   | 21.0                     | 20.8     | 20.7       | 0   | 20.0                        | 19.9     | 19.8       |
|             |          |       | 25            | 12        | 3   | 21.0                     | 20.8     | 20.6       | 0   | 19.9                        | 19.8     | 19.9       |
|             |          |       | 25            | 25        | 3   | 21.0                     | 20.7     | 20.9       | 0   | 19.9                        | 19.9     | 19.9       |
|             |          |       | 50            | 0         | 3   | 21.0                     | 20.8     | 20.7       | 0   | 19.9                        | 19.9     | 19.9       |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |          |            | MPR | Reduced Meas. Avg Pwr (dBm) |          |            |
|             |          |       |               |           |     | 1712.5 MHz               | 1745 MHz | 1777.5 MHz |     | 1712.5 MHz                  | 1745 MHz | 1777.5 MHz |
| LTE Band 66 | 5        | QPSK  | 1             | 0         | 0   | 24.3                     | 24.2     | 23.9       | 0   | 20.4                        | 20.4     | 20.5       |
|             |          |       | 1             | 12        | 0   | 24.4                     | 24.2     | 24.1       | 0   | 20.4                        | 20.3     | 20.4       |
|             |          |       | 1             | 24        | 0   | 24.4                     | 24.1     | 24.1       | 0   | 20.4                        | 20.4     | 20.4       |
|             |          |       | 12            | 0         | 1   | 23.4                     | 23.2     | 23.0       | 0   | 20.4                        | 20.4     | 20.4       |
|             |          |       | 12            | 7         | 1   | 23.4                     | 23.1     | 23.0       | 0   | 20.4                        | 20.4     | 20.4       |
|             |          |       | 12            | 13        | 1   | 23.3                     | 23.1     | 23.0       | 0   | 20.4                        | 20.3     | 20.4       |
|             |          |       | 25            | 0         | 1   | 23.4                     | 23.1     | 23.1       | 0   | 20.4                        | 20.4     | 20.4       |
|             |          | 16QAM | 1             | 0         | 1   | 23.5                     | 23.3     | 23.0       | 0   | 20.6                        | 20.5     | 20.6       |
|             |          |       | 1             | 12        | 1   | 23.5                     | 23.2     | 23.2       | 0   | 20.5                        | 20.4     | 20.5       |
|             |          |       | 1             | 24        | 1   | 23.4                     | 23.2     | 23.3       | 0   | 20.5                        | 20.6     | 20.6       |
|             |          |       | 12            | 0         | 2   | 22.5                     | 22.2     | 22.1       | 0   | 20.5                        | 20.4     | 20.5       |
|             |          |       | 12            | 7         | 2   | 22.4                     | 22.2     | 22.2       | 0   | 20.5                        | 20.4     | 20.5       |
|             |          |       | 12            | 13        | 2   | 22.4                     | 22.2     | 22.2       | 0   | 20.5                        | 20.4     | 20.5       |
|             |          |       | 25            | 0         | 2   | 22.3                     | 22.1     | 22.1       | 0   | 20.4                        | 20.3     | 20.4       |
|             |          | 64QAM | 1             | 0         | 2   | 22.0                     | 22.0     | 21.9       | 0   | 19.8                        | 19.8     | 19.9       |
|             |          |       | 1             | 12        | 2   | 22.0                     | 22.1     | 21.8       | 0   | 19.8                        | 19.8     | 19.8       |
|             |          |       | 1             | 24        | 2   | 22.0                     | 22.0     | 21.8       | 0   | 19.9                        | 19.8     | 19.8       |
|             |          |       | 12            | 0         | 3   | 21.0                     | 20.8     | 20.7       | 0   | 19.9                        | 19.9     | 19.9       |
|             |          |       | 12            | 7         | 3   | 21.0                     | 20.8     | 20.9       | 0   | 20.0                        | 19.9     | 19.8       |
|             |          |       | 12            | 13        | 3   | 21.0                     | 20.8     | 20.9       | 0   | 20.0                        | 19.9     | 19.9       |
|             |          |       | 25            | 0         | 3   | 21.0                     | 20.8     | 20.8       | 0   | 20.0                        | 19.9     | 19.9       |

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

| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |          |            | MPR | Reduced Meas. Avg Pwr (dBm) |          |            |
|-------------|----------|-------|---------------|-----------|-----|--------------------------|----------|------------|-----|-----------------------------|----------|------------|
|             |          |       |               |           |     | 1711.5 MHz               | 1745 MHz | 1778.5 MHz |     | 1711.5 MHz                  | 1745 MHz | 1778.5 MHz |
| LTE Band 66 | 3        | QPSK  | 1             | 0         | 0   | 24.2                     | 24.0     | 24.1       | 0   | 20.3                        | 20.3     | 20.3       |
|             |          |       | 1             | 8         | 0   | 24.3                     | 24.1     | 24.2       | 0   | 20.4                        | 20.3     | 20.4       |
|             |          |       | 1             | 14        | 0   | 24.2                     | 24.0     | 24.1       | 0   | 20.3                        | 20.2     | 20.3       |
|             |          |       | 8             | 0         | 1   | 23.3                     | 23.1     | 23.1       | 0   | 20.4                        | 20.3     | 20.3       |
|             |          |       | 8             | 4         | 1   | 23.3                     | 23.1     | 23.1       | 0   | 20.4                        | 20.3     | 20.4       |
|             |          |       | 8             | 7         | 1   | 23.3                     | 23.0     | 23.1       | 0   | 20.4                        | 20.3     | 20.4       |
|             |          |       | 15            | 0         | 1   | 23.3                     | 23.0     | 23.1       | 0   | 20.3                        | 20.3     | 20.3       |
|             |          | 16QAM | 1             | 0         | 1   | 23.3                     | 23.1     | 23.0       | 0   | 20.4                        | 20.4     | 20.3       |
|             |          |       | 1             | 8         | 1   | 23.4                     | 23.2     | 23.1       | 0   | 20.5                        | 20.4     | 20.4       |
|             |          |       | 1             | 14        | 1   | 23.3                     | 23.1     | 23.0       | 0   | 20.4                        | 20.3     | 20.2       |
|             |          |       | 8             | 0         | 2   | 22.4                     | 22.1     | 22.2       | 0   | 20.4                        | 20.3     | 20.5       |
|             |          |       | 8             | 4         | 2   | 22.4                     | 22.1     | 22.2       | 0   | 20.5                        | 20.4     | 20.5       |
|             |          |       | 8             | 7         | 2   | 22.4                     | 22.1     | 22.2       | 0   | 20.4                        | 20.4     | 20.5       |
|             |          |       | 15            | 0         | 2   | 22.3                     | 22.0     | 22.1       | 0   | 20.3                        | 20.3     | 20.4       |
|             |          | 64QAM | 1             | 0         | 2   | 22.0                     | 21.6     | 21.7       | 0   | 19.9                        | 19.9     | 19.9       |
|             |          |       | 1             | 8         | 2   | 22.0                     | 21.7     | 21.8       | 0   | 19.8                        | 19.8     | 20.0       |
|             |          |       | 1             | 14        | 2   | 22.0                     | 21.8     | 21.8       | 0   | 19.7                        | 19.8     | 20.0       |
|             |          |       | 8             | 0         | 3   | 21.0                     | 20.8     | 20.9       | 0   | 19.8                        | 19.9     | 20.0       |
|             |          |       | 8             | 4         | 3   | 21.0                     | 20.8     | 20.9       | 0   | 20.0                        | 19.9     | 20.0       |
|             |          |       | 8             | 7         | 3   | 21.0                     | 20.8     | 20.8       | 0   | 19.9                        | 19.9     | 19.9       |
|             |          |       | 15            | 0         | 3   | 21.0                     | 20.7     | 20.8       | 0   | 19.9                        | 19.8     | 19.9       |
| Band        | BW (MHz) | Mode  | RB Allocation | RB offset | MPR | Max. Meas. Avg Pwr (dBm) |          |            | MPR | Reduced Meas. Avg Pwr (dBm) |          |            |
|             |          |       |               |           |     | 1710.7 MHz               | 1745 MHz | 1779.3 MHz |     | 1710.7 MHz                  | 1745 MHz | 1779.3 MHz |
| LTE Band 66 | 1.4      | QPSK  | 1             | 0         | 0   | 24.1                     | 24.0     | 24.2       | 0   | 20.2                        | 20.2     | 20.3       |
|             |          |       | 1             | 3         | 0   | 24.1                     | 24.1     | 24.2       | 0   | 20.2                        | 20.2     | 20.3       |
|             |          |       | 1             | 5         | 0   | 24.1                     | 24.0     | 24.1       | 0   | 20.2                        | 20.2     | 20.3       |
|             |          |       | 3             | 0         | 0   | 24.1                     | 24.0     | 24.1       | 0   | 20.2                        | 20.2     | 20.3       |
|             |          |       | 3             | 1         | 0   | 24.2                     | 24.1     | 24.1       | 0   | 20.2                        | 20.3     | 20.3       |
|             |          |       | 3             | 3         | 0   | 24.2                     | 24.1     | 24.1       | 0   | 20.2                        | 20.3     | 20.3       |
|             |          |       | 6             | 0         | 1   | 23.2                     | 23.1     | 23.1       | 0   | 20.2                        | 20.2     | 20.3       |
|             |          | 16QAM | 1             | 0         | 1   | 23.2                     | 23.1     | 23.2       | 0   | 20.3                        | 20.3     | 20.3       |
|             |          |       | 1             | 3         | 1   | 23.2                     | 23.1     | 23.3       | 0   | 20.3                        | 20.3     | 20.4       |
|             |          |       | 1             | 5         | 1   | 23.2                     | 23.1     | 23.3       | 0   | 20.3                        | 20.3     | 20.3       |
|             |          |       | 3             | 0         | 1   | 23.4                     | 23.2     | 23.3       | 0   | 20.3                        | 20.4     | 20.5       |
|             |          |       | 3             | 1         | 1   | 23.4                     | 23.3     | 23.3       | 0   | 20.3                        | 20.5     | 20.5       |
|             |          |       | 3             | 3         | 1   | 23.4                     | 23.3     | 23.3       | 0   | 20.3                        | 20.5     | 20.5       |
|             |          |       | 6             | 0         | 2   | 22.4                     | 22.3     | 22.3       | 0   | 20.3                        | 20.4     | 20.5       |
|             |          | 64QAM | 1             | 0         | 2   | 21.8                     | 21.7     | 21.7       | 0   | 19.8                        | 19.9     | 19.9       |
|             |          |       | 1             | 3         | 2   | 21.8                     | 21.8     | 21.6       | 0   | 19.8                        | 19.9     | 19.9       |
|             |          |       | 1             | 5         | 2   | 21.9                     | 21.8     | 21.8       | 0   | 19.9                        | 19.9     | 20.0       |
|             |          |       | 3             | 0         | 2   | 21.6                     | 21.5     | 21.5       | 0   | 19.6                        | 19.7     | 19.8       |
|             |          |       | 3             | 1         | 2   | 21.6                     | 21.6     | 21.5       | 0   | 19.6                        | 19.6     | 19.7       |
|             |          |       | 3             | 3         | 2   | 21.6                     | 21.5     | 21.4       | 0   | 19.7                        | 19.5     | 19.6       |
|             |          |       | 6             | 0         | 3   | 20.8                     | 20.7     | 20.7       | 0   | 19.8                        | 19.8     | 19.9       |

## 9.4. LTE Carrier Aggregation

The following power measurements were performed with a single carrier uplink; CA for this device is only supported in the downlinks.

This device supports CA combinations of one (1) Uplink and up to three (3) Downlinks.

| Type                      | LTE CA combinations |   |     | PCC (UL) |          |         |             |           | SCC (DL) |         |             | LTE Rel 8 Tx. Power [dBm] | LTE Rel 11 Tx. Power [dBm] | Delta |
|---------------------------|---------------------|---|-----|----------|----------|---------|-------------|-----------|----------|---------|-------------|---------------------------|----------------------------|-------|
|                           | PCC                 | + | SCC | Mode     | BW (MHz) | Channel | Freq. (MHz) | RB/Offset | BW (MHz) | Channel | Freq. (MHz) |                           |                            |       |
| Intra-Band Contiguous     | 12B                 |   |     | QPSK     | 5        | 23035   | 701.5       | 1,0       | 10       | 5107    | 738.7       | 24.60                     | 24.61                      | 0.0%  |
|                           | 7C                  |   |     | QPSK     | 20       | 21001   | 2525.1      | 1,0       | 20       | 3199    | 2664.9      | 20.83                     | 20.83                      | 0.0%  |
|                           | 41C                 |   |     | QPSK     | 20       | 39750   | 2506.0      | 1,0       | 20       | 39948   | 2525.8      | 20.54                     | 20.56                      | 0.1%  |
|                           | 66B                 |   |     | QPSK     | 15       | 132597  | 1772.5      | 1,0       | 5        | 67154   | 2181.8      | 24.64                     | 24.71                      | 0.3%  |
|                           | 66C                 |   |     | QPSK     | 20       | 132072  | 1720.0      | 1,0       | 20       | 66734   | 2139.8      | 24.47                     | 24.50                      | 0.1%  |
| Intra-Band Non-Contiguous | 2A                  | + | 2A  | QPSK     | 20       | 18700   | 1860.0      | 1,0       | 20       | 1100    | 1980.0      | 23.03                     | 23.03                      | 0.0%  |
|                           | 4A                  | + | 4A  | QPSK     | 20       | 20050   | 1720.0      | 1,0       | 20       | 2300    | 2145.0      | 24.25                     | 24.23                      | -0.1% |
|                           | 7A                  | + | 7A  | QPSK     | 20       | 20850   | 2510.0      | 1,0       | 20       | 3350    | 2680.0      | 20.62                     | 20.56                      | -0.3% |
|                           | 66A                 | + | 66A | QPSK     | 20       | 132572  | 1770.0      | 1,0       | 20       | 66536   | 2120.0      | 24.54                     | 24.59                      | 0.2%  |
| Inter-Band Non-Contiguous | 2A                  | + | 4A  | QPSK     | 20       | 18900   | 1880.0      | 1,0       | 20       | 2175    | 2132.5      | 22.78                     | 22.77                      | 0.0%  |
|                           | 2A                  | + | 5A  | QPSK     | 20       | 18900   | 1880.0      | 1,0       | 10       | 2525    | 881.5       | 22.85                     | 22.86                      | 0.0%  |
|                           | 2A                  | + | 7A  | QPSK     | 20       | 18900   | 1880.0      | 1,0       | 20       | 3100    | 2655.0      | 22.86                     | 22.87                      | 0.0%  |
|                           | 2A                  | + | 12A | QPSK     | 20       | 18900   | 1880.0      | 1,0       | 10       | 5095    | 737.5       | 22.80                     | 22.81                      | 0.0%  |
|                           | 2A                  | + | 13A | QPSK     | 20       | 18900   | 1880.0      | 1,0       | 10       | 5230    | 751.0       | 22.79                     | 22.83                      | 0.2%  |
|                           | 2A                  | + | 17A | QPSK     | 10       | 18900   | 1880.0      | 1,0       | 10       | 5790    | 740.0       | 22.86                     | 22.89                      | 0.1%  |
|                           | 2A                  | + | 29A | QPSK     | 20       | 18900   | 1880.0      | 1,0       | 10       | 9715    | 722.5       | 22.76                     | 22.78                      | 0.1%  |
|                           | 4A                  | + | 5A  | QPSK     | 20       | 20175   | 1732.5      | 1,0       | 10       | 2525    | 881.5       | 24.67                     | 24.69                      | 0.1%  |
|                           | 4A                  | + | 7A  | QPSK     | 20       | 20175   | 1732.5      | 1,0       | 20       | 3100    | 2655.0      | 24.71                     | 24.66                      | -0.2% |
|                           | 4A                  | + | 12A | QPSK     | 20       | 20175   | 1732.5      | 1,0       | 10       | 5095    | 737.5       | 24.66                     | 24.68                      | 0.1%  |
|                           | 4A                  | + | 13A | QPSK     | 20       | 20175   | 1732.5      | 1,0       | 10       | 5230    | 751.0       | 24.65                     | 24.69                      | 0.2%  |
|                           | 4A                  | + | 17A | QPSK     | 10       | 20000   | 1715.0      | 1,0       | 10       | 5790    | 740.0       | 24.11                     | 24.10                      | 0.0%  |
|                           | 4A                  | + | 29A | QPSK     | 20       | 20175   | 1732.5      | 1,0       | 10       | 9715    | 722.5       | 24.66                     | 24.70                      | 0.2%  |
|                           | 5A                  | + | 7A  | QPSK     | 10       | 20525   | 836.5       | 1,0       | 20       | 3100    | 2655.0      | 22.28                     | 22.30                      | 0.1%  |
|                           | 7A                  | + | 12A | QPSK     | 20       | 21100   | 2535.0      | 1,0       | 10       | 5095    | 737.5       | 20.80                     | 20.79                      | 0.0%  |
|                           | 12A                 | + | 66A | QPSK     | 10       | 23095   | 707.5       | 1,0       | 20       | 66886   | 2155.0      | 24.52                     | 24.50                      | -0.1% |

| Type                      | LTE CA combinations |   |      |   | PCC (UL) |      |          |         |             | SCC1 (DL) |          |         | SCC2 (DL)   |          |         | LTE Rel 8 Tx. Power [dBm] | LTE Rel 11 Tx. Power [dBm] | Delta |             |
|---------------------------|---------------------|---|------|---|----------|------|----------|---------|-------------|-----------|----------|---------|-------------|----------|---------|---------------------------|----------------------------|-------|-------------|
|                           | PCC                 | + | SCC1 | + | SCC2     | Mode | BW (MHz) | Channel | Freq. (MHz) | RB/Offset | BW (MHz) | Channel | Freq. (MHz) | BW (MHz) | Channel |                           |                            |       | Freq. (MHz) |
| Inter-Band Non-Contiguous | 2A                  | + | 2A   | + | 13A      | QPSK | 20       | 18700   | 1860.0      | 1.0       | 20       | 1100    | 1980.0      | 10       | 5230    | 751.0                     | 22.98                      | 22.99 | 0.0%        |
|                           | 2A                  | + | 4A   | + | 4A       | QPSK | 20       | 18700   | 1860.0      | 1.0       | 20       | 2300    | 2145.0      | 20       | 2050    | 2120.0                    | 22.98                      | 22.96 | -0.1%       |
|                           | 2A                  | + | 4A   | + | 5A       | QPSK | 20       | 18700   | 1860.0      | 1.0       | 20       | 2300    | 2145.0      | 10       | 2525    | 881.5                     | 22.95                      | 22.99 | 0.2%        |
|                           | 2A                  | + | 4A   | + | 12A      | QPSK | 20       | 18700   | 1860.0      | 1.0       | 20       | 2300    | 2145.0      | 10       | 5095    | 737.5                     | 23.00                      | 23.01 | 0.0%        |
|                           | 2A                  | + | 4A   | + | 13A      | QPSK | 20       | 18700   | 1860.0      | 1.0       | 20       | 2300    | 2145.0      | 10       | 5230    | 751.0                     | 22.95                      | 23.00 | 0.2%        |
|                           | 2A                  | + | 4A   | + | 29A      | QPSK | 20       | 18700   | 1860.0      | 1.0       | 20       | 2300    | 2145.0      | 10       | 9715    | 722.5                     | 22.96                      | 22.99 | 0.1%        |
|                           | 4A                  | + | 4A   | + | 5A       | QPSK | 20       | 20050   | 1720.0      | 1.0       | 20       | 2300    | 2145.0      | 10       | 2525    | 881.5                     | 24.26                      | 24.26 | 0.0%        |
|                           | 4A                  | + | 4A   | + | 12A      | QPSK | 20       | 20050   | 1720.0      | 1.0       | 20       | 2300    | 2145.0      | 10       | 5095    | 737.5                     | 24.26                      | 24.19 | -0.3%       |
|                           | 4A                  | + | 4A   | + | 13A      | QPSK | 20       | 20050   | 1720.0      | 1.0       | 20       | 2300    | 2145.0      | 10       | 5230    | 751.0                     | 24.26                      | 24.19 | -0.3%       |
|                           | 4A                  | + |      |   | 12B      | QPSK | 20       | 20175   | 1732.5      | 1.0       | 5        | 5035    | 731.5       | 10       | 5107    | 738.7                     | 24.68                      | 24.68 | 0.0%        |
|                           | 5A                  | + | 7A   | + | 7A       | QPSK | 10       | 20525   | 836.5       | 50.0      | 20       | 2850    | 2630.0      | 20       | 3350    | 2680.0                    | 22.36                      | 22.37 | 0.0%        |

### Note:

Per KDB 941225 D05A LTE Rel. 10 KDB Inquiry Sheet: SAR is excluded for Carrier Aggregation when measured power does not exceed LTE Release 8 by more than a  $\frac{1}{4}$  dBm

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

### Measured Results

| Band (GHz) | Mode           | Data Rate | Ch # | Freq. (MHz) | Meas. Avg Pwr (dBm) |         | Max Output Power (dBm) |         | SAR Test (Yes/No) |
|------------|----------------|-----------|------|-------------|---------------------|---------|------------------------|---------|-------------------|
|            |                |           |      |             | Chain 0             | Chain 1 | Chain 0                | Chain 1 |                   |
| 2.4        | 802.11b        | 1 Mbps    | 1    | 2412        | 13.2                | 12.5    | 13.7                   | 13.5    | Yes               |
|            |                |           | 6    | 2437        | 13.2                | 12.8    |                        |         |                   |
|            |                |           | 11   | 2462        | 13.1                | 13.0    |                        |         |                   |
|            | 802.11g        | 6 Mbps    | 1    | 2412        | 13.3                | 13.0    | 13.7                   | 13.5    | No                |
|            |                |           | 6    | 2437        | 13.3                | 12.9    |                        |         |                   |
|            |                |           | 11   | 2462        | 13.3                | 13.0    |                        |         |                   |
|            | 802.11n (HT20) | 6.5 Mbps  | 1    | 2412        | 13.3                | 12.5    | 13.7                   | 13.5    | No                |
|            |                |           | 6    | 2437        | 13.2                | 13.0    |                        |         |                   |
|            |                |           | 11   | 2462        | 13.2                | 13.0    |                        |         |                   |

### Note(s):

1. SAR not required for 802.11g/n modes when the adjusted SAR for 802.11b is < 1.2 W/kg.

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

### Measured Results

| Band (GHz)      | Mode             | Data Rate | Ch # | Freq. (MHz) | Meas. Avg Pwr (dBm) |              | Max Output Power (dBm) |         | SAR Test (Yes/No) |
|-----------------|------------------|-----------|------|-------------|---------------------|--------------|------------------------|---------|-------------------|
|                 |                  |           |      |             | Chain 0             | Chain 1      | Chain 0                | Chain 1 |                   |
| 5.3<br>U-NII-2A | 802.11a          | 6 Mbps    | 52   | 5260        | Not Required        | Not Required | 13.5                   | 14.0    | No                |
|                 |                  |           | 56   | 5280        |                     |              |                        |         |                   |
|                 |                  |           | 60   | 5300        |                     |              |                        |         |                   |
|                 |                  |           | 64   | 5320        |                     |              |                        |         |                   |
|                 | 802.11n (HT20)   | 6.5 Mbps  | 52   | 5260        |                     |              | 13.5                   | 14.0    | No                |
|                 |                  |           | 56   | 5280        |                     |              |                        |         |                   |
|                 |                  |           | 60   | 5300        |                     |              |                        |         |                   |
|                 |                  |           | 64   | 5320        |                     |              |                        |         |                   |
|                 | 802.11n (HT40)   | 13.5 Mbps | 54   | 5270        |                     |              | 13.5                   | 14.0    | No                |
|                 |                  |           | 62   | 5310        |                     |              |                        |         |                   |
|                 |                  |           | 52   | 5260        |                     |              |                        |         |                   |
|                 |                  |           | 56   | 5280        |                     |              |                        |         |                   |
|                 | 802.11ac (VHT20) | 6.5 Mbps  | 60   | 5300        |                     |              | 13.5                   | 14.0    | No                |
|                 |                  |           | 64   | 5320        |                     |              |                        |         |                   |
|                 |                  |           | 54   | 5270        |                     |              |                        |         |                   |
|                 |                  |           | 62   | 5310        |                     |              |                        |         |                   |
|                 | 802.11ac (VHT40) | 13.5 Mbps | 54   | 5270        |                     |              | 13.5                   | 14.0    | No                |
|                 | 802.11ac (VHT80) | 29.3 Mbps | 58   | 5290        | 13.4                | 14.0         | 13.5                   | 14.0    | Yes               |
| 5.5<br>U-NII-2C | 802.11a          | 6 Mbps    | 100  | 5500        | Not Required        | Not Required | 13.5                   | 14.0    | No                |
|                 |                  |           | 116  | 5580        |                     |              |                        |         |                   |
|                 |                  |           | 124  | 5620        |                     |              |                        |         |                   |
|                 |                  |           | 140  | 5700        |                     |              |                        |         |                   |
|                 | 802.11n (HT20)   | 6.5 Mbps  | 100  | 5500        |                     |              | 13.5                   | 14.0    | No                |
|                 |                  |           | 116  | 5580        |                     |              |                        |         |                   |
|                 |                  |           | 124  | 5620        |                     |              |                        |         |                   |
|                 |                  |           | 140  | 5700        |                     |              |                        |         |                   |
|                 | 802.11n (HT40)   | 13.5 Mbps | 102  | 5510        |                     |              | 13.5                   | 14.0    | No                |
|                 |                  |           | 118  | 5590        |                     |              |                        |         |                   |
|                 |                  |           | 134  | 5670        |                     |              |                        |         |                   |
|                 |                  |           | 100  | 5500        |                     |              |                        |         |                   |
|                 | 802.11ac (VHT20) | 6.5 Mbps  | 116  | 5580        |                     |              | 13.5                   | 14.0    | No                |
|                 |                  |           | 124  | 5620        |                     |              |                        |         |                   |
|                 |                  |           | 140  | 5700        |                     |              |                        |         |                   |
|                 |                  |           | 102  | 5510        |                     |              |                        |         |                   |
|                 | 802.11ac (VHT40) | 13.5 Mbps | 118  | 5590        |                     |              | 13.5                   | 14.0    | No                |
|                 |                  |           | 134  | 5670        |                     |              |                        |         |                   |
|                 |                  |           | 106  | 5530        |                     |              |                        |         |                   |
|                 |                  |           | 122  | 5610        |                     |              |                        |         |                   |
|                 | 802.11ac (VHT80) | 29.3 Mbps | 138  | 5690        | 13.4                | 14.0         | 13.5                   | 14.0    | Yes               |
|                 |                  |           |      |             |                     |              |                        |         |                   |
| 5.8<br>U-NII-3  | 802.11a          | 6 Mbps    | 149  | 5745        | Not Required        | Not Required | 13.5                   | 14.0    | No                |
|                 |                  |           | 157  | 5785        |                     |              |                        |         |                   |
|                 |                  |           | 165  | 5825        |                     |              |                        |         |                   |
|                 | 802.11n (HT20)   | 6.5 Mbps  | 149  | 5745        |                     |              | 13.5                   | 14.0    | No                |
|                 |                  |           | 157  | 5785        |                     |              |                        |         |                   |
|                 |                  |           | 165  | 5825        |                     |              |                        |         |                   |
|                 | 802.11n (HT40)   | 13.5 Mbps | 151  | 5755        |                     |              | 13.5                   | 14.0    | No                |
|                 |                  |           | 159  | 5795        |                     |              |                        |         |                   |
|                 |                  |           | 149  | 5745        |                     |              |                        |         |                   |
|                 | 802.11ac (VHT20) | 6.5 Mbps  | 157  | 5785        |                     |              | 13.5                   | 14.0    | No                |
|                 |                  |           | 165  | 5825        |                     |              |                        |         |                   |
|                 |                  |           | 151  | 5755        |                     |              |                        |         |                   |
|                 | 802.11ac (VHT40) | 13.5 Mbps | 159  | 5795        |                     |              | 13.5                   | 14.0    | No                |
|                 |                  |           | 155  | 5775        | 12.8                | 13.6         | 13.5                   | 14.0    | Yes               |

### Note(s):

- For "Not required", SAR Test reduction was applied per KDB 248227.
- When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band.
- 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

Maximum tune-up tolerance limit is 9.88 dBm. This power level qualifies for exclusion of SAR testing. Refer to §10.21 for Standalone SAR Test Exclusion Considerations & Estimated SAR.

## 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:

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             | Power Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|------------------------|------------------|----------------|------------|---------------|-------|-------------|---------------|-------|----------------|--------------|----------|
|                        |                  |                |            |               |       |             | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| Head                   | GPRS 3 Slots     | OFF            | 0          | Left Touch    | 190   | 836.6       | 28.5          | 27.9  | 0.573          | <b>0.658</b> | 1        |
|                        |                  |                |            | Left Tilt     | 190   | 836.6       | 28.5          | 27.9  | 0.192          | 0.220        |          |
|                        |                  |                |            | Right Touch   | 190   | 836.6       | 28.5          | 27.9  | 0.523          | 0.600        |          |
|                        |                  |                |            | Right Tilt    | 190   | 836.6       | 28.5          | 27.9  | 0.190          | 0.218        |          |
| Body-worn              | GPRS 3 Slots     | OFF            | 15         | Rear          | 190   | 836.6       | 28.5          | 27.9  | 0.359          | <b>0.412</b> | 2        |
|                        |                  |                |            | Front         | 190   | 836.6       | 28.5          | 27.9  | 0.345          | 0.396        |          |
| Hotspot                | GPRS 3 Slots     | OFF            | 10         | Rear          | 190   | 836.6       | 28.5          | 27.9  | 0.489          | 0.561        |          |
|                        |                  |                |            | Front         | 190   | 836.6       | 28.5          | 27.9  | 0.452          | 0.519        |          |
|                        |                  |                |            | Edge 2        | 190   | 836.6       | 28.5          | 27.9  | 0.185          | 0.212        |          |
|                        |                  |                |            | Edge 3        | 190   | 836.6       | 28.5          | 27.9  | 0.045          | 0.052        |          |
|                        |                  |                |            | Edge 4        | 190   | 836.6       | 28.5          | 27.9  | 0.332          | 0.381        |          |
|                        | DTM CS+PS 1 Slot | OFF            | 10         | Front         | 190   | 836.6       | 30.2          | 29.2  | 0.456          | <b>0.574</b> | 3        |

## 10.2. GSM1900

| RF Exposure Conditions | Mode             | Power Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|------------------------|------------------|----------------|------------|---------------|-------|-------------|---------------|-------|----------------|--------------|----------|
|                        |                  |                |            |               |       |             | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| Head                   | GPRS 4 Slots     | OFF            | 0          | Left Touch    | 661   | 1880.0      | 26.2          | 25.5  | 0.428          | <b>0.503</b> | 4        |
|                        |                  |                |            | Left Tilt     | 661   | 1880.0      | 26.2          | 25.5  | 0.289          | 0.340        |          |
|                        |                  |                |            | Right Touch   | 661   | 1880.0      | 26.2          | 25.5  | 0.422          | 0.496        |          |
|                        |                  |                |            | Right Tilt    | 661   | 1880.0      | 26.2          | 25.5  | 0.214          | 0.251        |          |
| Body-worn              | GPRS 4 Slots     | OFF            | 15         | Rear          | 661   | 1880.0      | 26.2          | 25.5  | 0.249          | <b>0.293</b> | 5        |
|                        |                  |                |            | Front         | 661   | 1880.0      | 26.2          | 25.5  | 0.247          | 0.290        |          |
| Hotspot                | GPRS 4 Slots     | ON             | 10         | Rear          | 661   | 1880.0      | 23.2          | 22.5  | 0.253          | 0.297        |          |
|                        |                  |                |            | Front         | 661   | 1880.0      | 23.2          | 22.5  | 0.253          | 0.297        |          |
|                        |                  |                |            | Edge 2        | 661   | 1880.0      | 23.2          | 22.5  | 0.063          | 0.074        |          |
|                        |                  |                |            | Edge 3        | 661   | 1880.0      | 23.2          | 22.5  | 0.543          | 0.638        |          |
|                        |                  |                |            | Edge 4        | 661   | 1880.0      | 23.2          | 22.5  | 0.172          | 0.202        |          |
|                        | DTM CS+PS 1 Slot | ON             | 10         | Edge 3        | 661   | 1880.0      | 26.2          | 25.7  | 0.616          | <b>0.691</b> | 6        |

## 10.3. W-CDMA Band II

| RF Exposure Conditions | Mode       | Power Back-off | 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 | OFF            | 0          | Left Touch    | 9262  | 1852.4      | 22.9          | 22.2  | 0.550          | 0.646        | 7        |
|                        |            |                |            |               | 9400  | 1880.0      | 22.9          | 22.2  | 0.682          | 0.801        |          |
|                        |            |                |            |               | 9538  | 1907.6      | 22.9          | 22.3  | 0.753          | <b>0.865</b> |          |
|                        |            |                |            | Left Tilt     | 9400  | 1880.0      | 22.9          | 22.2  | 0.433          | 0.509        |          |
|                        |            |                |            | Right Touch   | 9400  | 1880.0      | 22.9          | 22.2  | 0.498          | 0.585        |          |
|                        |            |                |            | Right Tilt    | 9400  | 1880.0      | 22.9          | 22.2  | 0.335          | 0.394        |          |
| Body-worn              | Rel 99 RMC | OFF            | 15         | Rear          | 9400  | 1880.0      | 22.9          | 22.2  | 0.322          | 0.378        | 8        |
|                        |            |                |            | Front         | 9400  | 1880.0      | 22.9          | 22.2  | 0.400          | <b>0.470</b> |          |
| Hotspot                | Rel 99 RMC | ON             | 10         | Rear          | 9400  | 1880.0      | 19.5          | 19.2  | 0.321          | 0.344        | 9        |
|                        |            |                |            | Front         | 9400  | 1880.0      | 19.5          | 19.2  | 0.314          | 0.336        |          |
|                        |            |                |            | Edge 2        | 9400  | 1880.0      | 19.5          | 19.2  | 0.072          | 0.077        |          |
|                        |            |                |            | Edge 3        | 9400  | 1880.0      | 19.5          | 19.2  | 0.648          | <b>0.694</b> |          |
|                        |            |                |            | Edge 4        | 9400  | 1880.0      | 19.5          | 19.2  | 0.216          | 0.231        |          |

**10.4. W-CDMA Band IV**

| RF Exposure Conditions | Mode       | Power Back-off | 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 | OFF            | 0          | Left Touch    | 1413  | 1732.6      | 24.5          | 23.6  | 0.316          | 0.389        |          |
|                        |            |                |            | Left Tilt     | 1413  | 1732.6      | 24.5          | 23.6  | 0.205          | 0.252        |          |
|                        |            |                |            | Right Touch   | 1413  | 1732.6      | 24.5          | 23.6  | 0.512          | <b>0.630</b> | 10       |
|                        |            |                |            | Right Tilt    | 1413  | 1732.6      | 24.5          | 23.6  | 0.262          | 0.322        |          |
| Body-worn              | Rel 99 RMC | OFF            | 15         | Rear          | 1413  | 1732.6      | 24.5          | 23.6  | 0.630          | <b>0.775</b> | 11       |
|                        |            |                |            | Front         | 1413  | 1732.6      | 24.5          | 23.6  | 0.615          | 0.757        |          |
| Hotspot                | Rel 99 RMC | ON             | 10         | Rear          | 1413  | 1732.6      | 19.5          | 19.1  | 0.350          | 0.384        |          |
|                        |            |                |            | Front         | 1413  | 1732.6      | 19.5          | 19.1  | 0.345          | 0.378        |          |
|                        |            |                |            | Edge 2        | 1413  | 1732.6      | 19.5          | 19.1  | 0.078          | 0.086        |          |
|                        |            |                |            | Edge 3        | 1413  | 1732.6      | 19.5          | 19.1  | 0.510          | <b>0.559</b> | 12       |
|                        |            |                |            | Edge 4        | 1413  | 1732.6      | 19.5          | 19.1  | 0.057          | 0.062        |          |

**10.5. W-CDMA Band V**

| RF Exposure Conditions | Mode       | Power Back-off | 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 | OFF            | 0          | Left Touch    | 4183  | 836.6       | 22.7          | 21.9  | 0.506          | <b>0.608</b> | 13       |
|                        |            |                |            | Left Tilt     | 4183  | 836.6       | 22.7          | 21.9  | 0.180          | 0.216        |          |
|                        |            |                |            | Right Touch   | 4183  | 836.6       | 22.7          | 21.9  | 0.405          | 0.487        |          |
|                        |            |                |            | Right Tilt    | 4183  | 836.6       | 22.7          | 21.9  | 0.177          | 0.213        |          |
| Body-worn              | Rel 99 RMC | OFF            | 15         | Rear          | 4183  | 836.6       | 22.7          | 21.9  | 0.309          | <b>0.371</b> | 14       |
|                        |            |                |            | Front         | 4183  | 836.6       | 22.7          | 21.9  | 0.263          | 0.316        |          |
| Hotspot                | Rel 99 RMC | ON             | 10         | Rear          | 4183  | 836.6       | 22.7          | 21.9  | 0.383          | <b>0.460</b> | 15       |
|                        |            |                |            | Front         | 4183  | 836.6       | 22.7          | 21.9  | 0.341          | 0.410        |          |
|                        |            |                |            | Edge 2        | 4183  | 836.6       | 22.7          | 21.9  | 0.127          | 0.153        |          |
|                        |            |                |            | Edge 3        | 4183  | 836.6       | 22.7          | 21.9  | 0.048          | 0.058        |          |
|                        |            |                |            | Edge 4        | 4183  | 836.6       | 22.7          | 21.9  | 0.242          | 0.291        |          |

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

| RF Exposure Conditions | Mode | Power Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | RB Allocation | RB offset | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|------------------------|------|----------------|------------|---------------|-------|-------------|---------------|-----------|---------------|-------|----------------|--------------|----------|
|                        |      |                |            |               |       |             |               |           | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| Head                   | QPSK | OFF            | 0          | Left Touch    | 18700 | 1860.0      | 1             | 0         | 23.4          | 22.9  | 0.662          | 0.743        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 23.4          | 22.7  | 0.635          | 0.744        |          |
|                        |      |                |            |               | 18900 | 1880.0      | 1             | 0         | 23.4          | 22.8  | 0.699          | 0.803        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 23.4          | 22.7  | 0.692          | 0.821        |          |
|                        |      |                |            |               | 19100 | 1900.0      | 1             | 0         | 23.4          | 23.0  | 0.757          | 0.832        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 23.4          | 22.9  | 0.761          | 0.850        |          |
|                        |      |                |            |               |       |             | 100           | 0         | 23.4          | 22.9  | 0.772          | <b>0.876</b> | 16       |
|                        |      |                |            | Left Tilt     | 18900 | 1880.0      | 1             | 0         | 23.4          | 22.8  | 0.310          | 0.356        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 23.4          | 22.7  | 0.320          | 0.379        |          |
|                        |      |                |            | Right Touch   | 18900 | 1880.0      | 1             | 0         | 23.4          | 22.8  | 0.393          | 0.451        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 23.4          | 22.7  | 0.384          | 0.455        |          |
|                        |      |                |            | Right Tilt    | 18900 | 1880.0      | 1             | 0         | 23.4          | 22.8  | 0.263          | 0.302        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 23.4          | 22.7  | 0.256          | 0.304        |          |
| Body-worn              | QPSK | OFF            | 15         | Rear          | 18900 | 1880.0      | 1             | 0         | 23.4          | 22.8  | 0.480          | 0.551        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 23.4          | 22.7  | 0.436          | 0.517        |          |
|                        |      |                |            | Front         | 18900 | 1880.0      | 1             | 0         | 23.4          | 22.8  | 0.467          | 0.536        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 23.4          | 22.7  | 0.490          | <b>0.581</b> | 17       |
| Hotspot                | QPSK | ON             | 10         | Rear          | 18900 | 1880.0      | 1             | 0         | 20.0          | 19.4  | 0.412          | 0.471        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 20.0          | 19.2  | 0.391          | 0.469        |          |
|                        |      |                |            | Front         | 18900 | 1880.0      | 1             | 0         | 20.0          | 19.4  | 0.303          | 0.346        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 20.0          | 19.2  | 0.324          | 0.389        |          |
|                        |      |                |            | Edge 2        | 18900 | 1880.0      | 1             | 0         | 20.0          | 19.4  | 0.104          | 0.119        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 20.0          | 19.2  | 0.105          | 0.126        |          |
|                        |      |                |            | Edge 3        | 18700 | 1860.0      | 1             | 0         | 20.0          | 19.5  | 0.626          | 0.698        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 20.0          | 19.3  | 0.624          | 0.726        |          |
|                        |      |                |            |               | 18900 | 1880.0      | 1             | 0         | 20.0          | 19.4  | 0.727          | <b>0.831</b> | 18       |
|                        |      |                |            |               |       |             | 50            | 0         | 20.0          | 19.2  | 0.689          | 0.826        |          |
|                        |      |                |            |               | 19100 | 1900.0      | 1             | 0         | 20.0          | 19.4  | 0.720          | 0.829        |          |
|                        |      |                |            |               |       |             | 50            | 24        | 20.0          | 19.4  | 0.684          | 0.791        |          |
|                        |      |                |            |               |       |             | 100           | 0         | 20.0          | 19.4  | 0.658          | 0.759        |          |
|                        |      |                |            | Edge 4        | 18900 | 1880.0      | 1             | 0         | 20.0          | 19.4  | 0.194          | 0.222        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 20.0          | 19.2  | 0.179          | 0.215        |          |

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

SAR for LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

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

SAR for LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to similar frequency range, same channel bandwidth and LTE Band 26 has a higher maximum tune-up limit.

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

| RF Exposure Conditions | Mode | Power Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | RB Allocation | RB offset | Power (dBm)   |       | 1-g SAR (W/kg) |        | Plot No. |
|------------------------|------|----------------|------------|---------------|-------|-------------|---------------|-----------|---------------|-------|----------------|--------|----------|
|                        |      |                |            |               |       |             |               |           | Tune-up limit | Meas. | Meas.          | Scaled |          |
| Head                   | QPSK | OFF            | 0          | Left Touch    | 21100 | 2535.0      | 1             | 0         | 21.0          | 20.6  | 0.488          | 0.535  |          |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.5  | 0.470          | 0.523  |          |
|                        |      |                |            | Left Tilt     | 21100 | 2535.0      | 1             | 0         | 21.0          | 20.6  | 0.293          | 0.321  |          |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.5  | 0.290          | 0.322  |          |
|                        |      |                |            | Right Touch   | 20850 | 2510.0      | 1             | 0         | 21.0          | 20.4  | 0.835          | 0.954  |          |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.5  | 0.828          | 0.921  |          |
|                        |      |                |            |               | 21100 | 2535.0      | 1             | 0         | 21.0          | 20.6  | 0.858          | 0.941  |          |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.5  | 0.830          | 0.923  |          |
|                        |      |                |            |               | 21350 | 2560.0      | 1             | 0         | 21.0          | 20.6  | 0.880          | 0.967  | 19       |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.6  | 0.844          | 0.928  |          |
|                        |      |                |            | Right Tilt    | 21100 | 2535.0      | 100           | 0         | 21.0          | 20.5  | 0.866          | 0.967  |          |
|                        |      |                |            |               |       |             | 1             | 0         | 21.0          | 20.6  | 0.187          | 0.205  |          |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.5  | 0.186          | 0.207  |          |
| Body-worn              | QPSK | OFF            | 15         | Rear          | 21100 | 2535.0      | 1             | 0         | 21.0          | 20.6  | 0.261          | 0.286  | 20       |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.5  | 0.255          | 0.283  |          |
|                        |      |                |            | Front         | 21100 | 2535.0      | 1             | 0         | 21.0          | 20.6  | 0.199          | 0.218  |          |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.5  | 0.195          | 0.217  |          |
| Hotspot                | QPSK | OFF            | 10         | Rear          | 21100 | 2535.0      | 1             | 0         | 21.0          | 20.6  | 0.424          | 0.465  |          |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.5  | 0.405          | 0.450  |          |
|                        |      |                |            | Front         | 21100 | 2535.0      | 1             | 0         | 21.0          | 20.6  | 0.512          | 0.561  |          |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.5  | 0.505          | 0.561  |          |
|                        |      |                |            | Edge 2        | 21100 | 2535.0      | 1             | 0         | 21.0          | 20.6  | 0.569          | 0.624  | 21       |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.5  | 0.543          | 0.604  |          |
|                        |      |                |            | Edge 3        | 21100 | 2535.0      | 1             | 0         | 21.0          | 20.6  | 0.114          | 0.125  |          |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.5  | 0.106          | 0.118  |          |
|                        |      |                |            | Edge 4        | 21100 | 2535.0      | 1             | 0         | 21.0          | 20.6  | <0.001         | <0.001 |          |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.5  | <0.001         | <0.001 |          |

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

| RF Exposure Conditions | Mode | Power Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | RB Allocation | RB offset | Power (dBm)   |       | 1-g SAR (W/kg) |        | Plot No. |
|------------------------|------|----------------|------------|---------------|-------|-------------|---------------|-----------|---------------|-------|----------------|--------|----------|
|                        |      |                |            |               |       |             |               |           | Tune-up limit | Meas. | Meas.          | Scaled |          |
| Head                   | QPSK | OFF            | 0          | Left Touch    | 23095 | 707.5       | 1             | 0         | 25.0          | 24.4  | 0.444          | 0.507  | 22       |
|                        |      |                |            |               |       |             | 25            | 12        | 24.0          | 23.4  | 0.307          | 0.352  |          |
|                        |      |                |            | Left Tilt     | 23095 | 707.5       | 1             | 0         | 25.0          | 24.4  | 0.251          | 0.287  |          |
|                        |      |                |            |               |       |             | 25            | 12        | 24.0          | 23.4  | 0.160          | 0.183  |          |
|                        |      |                |            | Right Touch   | 23095 | 707.5       | 1             | 0         | 25.0          | 24.4  | 0.374          | 0.427  |          |
|                        |      |                |            |               |       |             | 25            | 12        | 24.0          | 23.4  | 0.269          | 0.308  |          |
|                        |      |                |            | Right Tilt    | 23095 | 707.5       | 1             | 0         | 25.0          | 24.4  | 0.233          | 0.266  |          |
|                        |      |                |            |               |       |             | 25            | 12        | 24.0          | 23.4  | 0.191          | 0.219  |          |
| Body-worn              | QPSK | OFF            | 15         | Rear          | 23095 | 707.5       | 1             | 0         | 25.0          | 24.4  | 0.493          | 0.563  | 23       |
|                        |      |                |            |               |       |             | 25            | 12        | 24.0          | 23.4  | 0.408          | 0.467  |          |
|                        |      |                |            | Front         | 23095 | 707.5       | 1             | 0         | 25.0          | 24.4  | 0.455          | 0.520  |          |
|                        |      |                |            |               |       |             | 25            | 12        | 24.0          | 23.4  | 0.378          | 0.433  |          |
| Hotspot                | QPSK | OFF            | 10         | Rear          | 23095 | 707.5       | 1             | 0         | 25.0          | 24.4  | 0.617          | 0.705  | 24       |
|                        |      |                |            |               |       |             | 25            | 12        | 24.0          | 23.4  | 0.502          | 0.575  |          |
|                        |      |                |            | Front         | 23095 | 707.5       | 1             | 0         | 25.0          | 24.4  | 0.567          | 0.648  |          |
|                        |      |                |            |               |       |             | 25            | 12        | 24.0          | 23.4  | 0.459          | 0.526  |          |
|                        |      |                |            | Edge 2        | 23095 | 707.5       | 1             | 0         | 25.0          | 24.4  | 0.358          | 0.409  |          |
|                        |      |                |            |               |       |             | 25            | 12        | 24.0          | 23.4  | 0.294          | 0.337  |          |
|                        |      |                |            | Edge 3        | 23095 | 707.5       | 1             | 0         | 25.0          | 24.4  | 0.088          | 0.100  |          |
|                        |      |                |            |               |       |             | 25            | 12        | 24.0          | 23.4  | 0.069          | 0.079  |          |
|                        |      |                |            | Edge 4        | 23095 | 707.5       | 1             | 0         | 25.0          | 24.4  | 0.596          | 0.681  |          |
|                        |      |                |            |               |       |             | 25            | 12        | 24.0          | 23.4  | 0.508          | 0.582  |          |

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

| RF Exposure Conditions | Mode | Power Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | RB Allocation | RB offset | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|------------------------|------|----------------|------------|---------------|-------|-------------|---------------|-----------|---------------|-------|----------------|--------------|----------|
|                        |      |                |            |               |       |             |               |           | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| Head                   | QPSK | OFF            | 0          | Left Touch    | 23230 | 782.0       | 1             | 25        | 24.0          | 23.5  | 0.508          | <b>0.571</b> | 25       |
|                        |      |                |            |               |       |             | 25            | 12        | 23.0          | 22.6  | 0.411          | 0.454        |          |
|                        |      |                |            | Left Tilt     | 23230 | 782.0       | 1             | 25        | 24.0          | 23.5  | 0.152          | 0.171        |          |
|                        |      |                |            |               |       |             | 25            | 12        | 23.0          | 22.6  | 0.123          | 0.136        |          |
|                        |      |                |            | Right Touch   | 23230 | 782.0       | 1             | 25        | 24.0          | 23.5  | 0.426          | 0.479        |          |
|                        |      |                |            |               |       |             | 25            | 12        | 23.0          | 22.6  | 0.338          | 0.373        |          |
| Body-worn              | QPSK | OFF            | 15         | Rear          | 23230 | 782.0       | 1             | 25        | 24.0          | 23.5  | 0.366          | <b>0.412</b> | 26       |
|                        |      |                |            |               |       |             | 25            | 12        | 23.0          | 22.6  | 0.287          | 0.317        |          |
|                        |      |                |            | Front         | 23230 | 782.0       | 1             | 25        | 24.0          | 23.5  | 0.304          | 0.342        |          |
|                        |      |                |            |               |       |             | 25            | 12        | 23.0          | 22.6  | 0.242          | 0.267        |          |
| Hotspot                | QPSK | OFF            | 10         | Rear          | 23230 | 782.0       | 1             | 25        | 24.0          | 23.5  | 0.486          | <b>0.547</b> | 27       |
|                        |      |                |            |               |       |             | 25            | 12        | 23.0          | 22.6  | 0.389          | 0.429        |          |
|                        |      |                |            | Front         | 23230 | 782.0       | 1             | 25        | 24.0          | 23.5  | 0.406          | 0.457        |          |
|                        |      |                |            |               |       |             | 25            | 12        | 23.0          | 22.6  | 0.324          | 0.358        |          |
|                        |      |                |            | Edge 2        | 23230 | 782.0       | 1             | 25        | 24.0          | 23.5  | 0.162          | 0.182        |          |
|                        |      |                |            |               |       |             | 25            | 12        | 23.0          | 22.6  | 0.130          | 0.144        |          |
|                        |      |                |            | Edge 3        | 23230 | 782.0       | 1             | 25        | 24.0          | 23.5  | 0.066          | 0.075        |          |
|                        |      |                |            |               |       |             | 25            | 12        | 23.0          | 22.6  | 0.056          | 0.062        |          |
|                        |      |                |            | Edge 4        | 23230 | 782.0       | 1             | 25        | 24.0          | 23.5  | 0.361          | 0.406        |          |
|                        |      |                |            |               |       |             | 25            | 12        | 23.0          | 22.6  | 0.290          | 0.320        |          |

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

SAR for LTE Band 17 (Frequency Range: 704-716 MHz) is covered by LTE Band 12 (Frequency Range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

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

| RF Exposure Conditions | Mode | Power Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | RB Allocation | RB offset | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|------------------------|------|----------------|------------|---------------|-------|-------------|---------------|-----------|---------------|-------|----------------|--------------|----------|
|                        |      |                |            |               |       |             |               |           | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| Head                   | QPSK | OFF            | 0          | Left Touch    | 26140 | 1860.0      | 50            | 0         | 23.0          | 22.2  | 0.625          | 0.760        | 28       |
|                        |      |                |            |               | 26365 | 1882.5      | 1             | 0         | 23.0          | 22.4  | 0.692          | 0.795        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 23.0          | 22.2  | 0.682          | 0.822        |          |
|                        |      |                |            | Left Tilt     | 26590 | 1905.0      | 50            | 0         | 23.0          | 22.4  | 0.756          | <b>0.874</b> |          |
|                        |      |                |            |               | 26365 | 1882.5      | 1             | 0         | 23.0          | 22.4  | 0.298          | 0.342        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 23.0          | 22.2  | 0.308          | 0.371        |          |
|                        |      |                |            | Right Touch   | 26365 | 1882.5      | 1             | 0         | 23.0          | 22.4  | 0.306          | 0.351        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 23.0          | 22.2  | 0.320          | 0.386        |          |
|                        |      |                |            |               | 26365 | 1882.5      | 1             | 0         | 23.0          | 22.4  | 0.250          | 0.287        |          |
|                        |      |                |            | Right Tilt    |       |             | 50            | 0         | 23.0          | 22.2  | 0.265          | 0.319        |          |
|                        |      |                |            |               |       |             |               |           |               |       |                |              |          |
|                        |      |                |            |               |       |             |               |           |               |       |                |              |          |
| Body-worn              | QPSK | OFF            | 15         | Rear          | 26365 | 1882.5      | 1             | 0         | 23.0          | 22.4  | 0.425          | 0.488        | 29       |
|                        |      |                |            |               |       |             | 50            | 0         | 23.0          | 22.2  | 0.408          | 0.492        |          |
|                        |      |                |            | Front         | 26365 | 1882.5      | 1             | 0         | 23.0          | 22.4  | 0.443          | 0.509        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 23.0          | 22.2  | 0.423          | <b>0.510</b> |          |
| Hotspot                | QPSK | ON             | 10         | Rear          | 26365 | 1882.5      | 1             | 0         | 21.0          | 20.6  | 0.491          | 0.541        | 30       |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.4  | 0.477          | 0.551        |          |
|                        |      |                |            | Front         | 26365 | 1882.5      | 1             | 0         | 21.0          | 20.6  | 0.433          | 0.477        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.4  | 0.417          | 0.482        |          |
|                        |      |                |            | Edge 2        | 26365 | 1882.5      | 1             | 0         | 21.0          | 20.6  | 0.100          | 0.110        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.4  | 0.101          | 0.117        |          |
|                        |      |                |            | Edge 3        | 26140 | 1860.0      | 1             | 0         | 21.0          | 20.4  | 0.686          | 0.788        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.3  | 0.697          | 0.819        |          |
|                        |      |                |            |               | 26365 | 1882.5      | 1             | 0         | 21.0          | 20.6  | 0.770          | 0.848        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.4  | 0.781          | 0.903        |          |
|                        |      |                |            |               |       |             | 1             | 0         | 21.0          | 20.6  | 0.867          | 0.955        |          |
|                        |      |                |            |               | 26590 | 1905.0      | 50            | 0         | 21.0          | 20.5  | 0.850          | 0.954        |          |
|                        |      |                |            | Edge 4        |       |             | 100           | 0         | 21.0          | 20.4  | 0.847          | <b>0.979</b> |          |
|                        |      |                |            |               | 26365 | 1882.5      | 1             | 0         | 21.0          | 20.6  | 0.223          | 0.246        |          |
|                        |      |                |            |               |       |             | 50            | 0         | 21.0          | 20.4  | 0.232          | 0.268        |          |
|                        |      |                |            |               |       |             |               |           |               |       |                |              |          |
|                        |      |                |            |               |       |             |               |           |               |       |                |              |          |
|                        |      |                |            |               |       |             |               |           |               |       |                |              |          |
|                        |      |                |            |               |       |             |               |           |               |       |                |              |          |
|                        |      |                |            |               |       |             |               |           |               |       |                |              |          |

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

| RF Exposure Conditions | Mode | Power Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | RB Allocation | RB offset | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|------------------------|------|----------------|------------|---------------|-------|-------------|---------------|-----------|---------------|-------|----------------|--------------|----------|
|                        |      |                |            |               |       |             |               |           | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| Head                   | QPSK | OFF            | 0          | Left Touch    | 26865 | 831.5       | 1             | 0         | 23.0          | 22.4  | 0.403          | <b>0.460</b> | 31       |
|                        |      |                |            |               |       |             | 36            | 0         | 23.0          | 22.5  | 0.392          | 0.439        |          |
|                        |      |                |            | Left Tilt     | 26865 | 831.5       | 1             | 0         | 23.0          | 22.4  | 0.162          | 0.185        |          |
|                        |      |                |            |               |       |             | 36            | 0         | 23.0          | 22.5  | 0.156          | 0.175        |          |
|                        |      |                |            | Right Touch   | 26865 | 831.5       | 1             | 0         | 23.0          | 22.4  | 0.301          | 0.344        |          |
|                        |      |                |            |               |       |             | 36            | 0         | 23.0          | 22.5  | 0.304          | 0.340        |          |
| Body-worn              | QPSK | OFF            | 15         | Rear          | 26865 | 831.5       | 1             | 0         | 23.0          | 22.4  | 0.359          | <b>0.410</b> | 32       |
|                        |      |                |            |               |       |             | 36            | 0         | 23.0          | 22.5  | 0.339          | 0.379        |          |
|                        |      |                |            | Front         | 26865 | 831.5       | 1             | 0         | 23.0          | 22.4  | 0.330          | 0.377        |          |
|                        |      |                |            |               |       |             | 36            | 0         | 23.0          | 22.5  | 0.310          | 0.347        |          |
| Hotspot                | QPSK | OFF            | 10         | Rear          | 26865 | 831.5       | 1             | 0         | 23.0          | 22.4  | 0.436          | <b>0.498</b> | 33       |
|                        |      |                |            |               |       |             | 36            | 0         | 23.0          | 22.5  | 0.418          | 0.468        |          |
|                        |      |                |            | Front         | 26865 | 831.5       | 1             | 0         | 23.0          | 22.4  | 0.397          | 0.453        |          |
|                        |      |                |            |               |       |             | 36            | 0         | 23.0          | 22.5  | 0.377          | 0.422        |          |
|                        |      |                |            | Edge 2        | 26865 | 831.5       | 1             | 0         | 23.0          | 22.4  | 0.119          | 0.136        |          |
|                        |      |                |            |               |       |             | 36            | 0         | 23.0          | 22.5  | 0.111          | 0.124        |          |
|                        |      |                |            | Edge 3        | 26865 | 831.5       | 1             | 0         | 23.0          | 22.4  | 0.054          | 0.062        |          |
|                        |      |                |            |               |       |             | 36            | 0         | 23.0          | 22.5  | 0.054          | 0.060        |          |
|                        |      |                |            | Edge 4        | 26865 | 831.5       | 1             | 0         | 23.0          | 22.4  | 0.338          | 0.386        |          |
|                        |      |                |            |               |       |             | 36            | 0         | 23.0          | 22.5  | 0.321          | 0.359        |          |

**10.15. LTE Band 38 (20MHz Bandwidth)**

SAR for LTE Band 38 (Frequency range: 2570-2620 MHz) is covered by LTE Band 41 (Frequency range: 2496-2690 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

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

| RF Exposure Conditions | Mode | Power Back-off | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | RB Allocation | RB offset | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|------------------------|------|----------------|------------|---------------|-------|-------------|---------------|-----------|---------------|-------|----------------|--------------|----------|
|                        |      |                |            |               |       |             |               |           | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| Head                   | QPSK | OFF            | 0          | Left Touch    | 40620 | 2593.0      | 1             | 0         | 21.0          | 20.5  | 0.267          | 0.302        |          |
|                        |      |                |            |               |       |             | 50            | 24        | 21.0          | 20.4  | 0.279          | 0.318        |          |
|                        |      |                |            | Left Tilt     | 40620 | 2593.0      | 1             | 0         | 21.0          | 20.5  | 0.177          | 0.200        |          |
|                        |      |                |            |               |       |             | 50            | 24        | 21.0          | 20.4  | 0.161          | 0.184        |          |
|                        |      |                |            | Right Touch   | 40620 | 2593.0      | 1             | 0         | 21.0          | 20.5  | 0.503          | <b>0.570</b> | 34       |
|                        |      |                |            |               |       |             | 50            | 24        | 21.0          | 20.4  | 0.497          | 0.567        |          |
| Body-worn              | QPSK | OFF            | 15         | Rear          | 40620 | 2593.0      | 1             | 0         | 21.0          | 20.5  | 0.148          | <b>0.168</b> | 35       |
|                        |      |                |            |               |       |             | 50            | 24        | 21.0          | 20.4  | 0.137          | 0.156        |          |
|                        |      |                |            | Front         | 40620 | 2593.0      | 1             | 0         | 21.0          | 20.5  | 0.121          | 0.137        |          |
|                        |      |                |            |               |       |             | 50            | 24        | 21.0          | 20.4  | 0.135          | 0.154        |          |
| Hotspot                | QPSK | OFF            | 10         | Rear          | 40620 | 2593.0      | 1             | 0         | 21.0          | 20.5  | 0.267          | 0.302        |          |
|                        |      |                |            |               |       |             | 50            | 24        | 21.0          | 20.4  | 0.264          | 0.301        |          |
|                        |      |                |            | Front         | 40620 | 2593.0      | 1             | 0         | 21.0          | 20.5  | 0.304          | 0.344        |          |
|                        |      |                |            |               |       |             | 50            | 24        | 21.0          | 20.4  | 0.303          | <b>0.345</b> | 36       |
|                        |      |                |            | Edge 2        | 40620 | 2593.0      | 1             | 0         | 21.0          | 20.5  | 0.287          | 0.325        |          |
|                        |      |                |            |               |       |             | 50            | 24        | 21.0          | 20.4  | 0.287          | 0.327        |          |
|                        |      |                |            | Edge 3        | 40620 | 2593.0      | 1             | 0         | 21.0          | 20.5  | 0.031          | 0.035        |          |
|                        |      |                |            |               |       |             | 50            | 24        | 21.0          | 20.4  | 0.028          | 0.032        |          |
|                        |      |                |            | Edge 4        | 40620 | 2593.0      | 1             | 0         | 21.0          | 20.5  | <0.001         | <0.001       |          |
|                        |      |                |            |               |       |             | 50            | 24        | 21.0          | 20.4  | <0.001         | <0.001       |          |

**10.17. LTE Band 66 (20MHz Bandwidth)**

| RF Exposure Conditions | Mode | Power Back-off | Dist. (mm) | Test Position | Ch #.  | Freq. (MHz) | RB Allocation | RB offset | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|------------------------|------|----------------|------------|---------------|--------|-------------|---------------|-----------|---------------|-------|----------------|--------------|----------|
|                        |      |                |            |               |        |             |               |           | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| Head                   | QPSK | OFF            | 0          | Left Touch    | 132322 | 1745.0      | 1             | 0         | 25.0          | 24.3  | 0.305          | 0.359        | 37       |
|                        |      |                |            |               |        |             | 50            | 0         | 24.0          | 23.3  | 0.261          | 0.307        |          |
|                        |      |                |            | Left Tilt     | 132322 | 1745.0      | 1             | 0         | 25.0          | 24.3  | 0.246          | 0.290        |          |
|                        |      |                |            |               |        |             | 50            | 0         | 24.0          | 23.3  | 0.198          | 0.233        |          |
|                        |      |                |            | Right Touch   | 132322 | 1745.0      | 1             | 0         | 25.0          | 24.3  | 0.587          | <b>0.691</b> |          |
|                        |      |                |            |               |        |             | 50            | 0         | 24.0          | 23.3  | 0.444          | 0.523        |          |
|                        |      |                |            | Right Tilt    | 132322 | 1745.0      | 1             | 0         | 25.0          | 24.3  | 0.246          | 0.290        |          |
|                        |      |                |            |               |        |             | 50            | 0         | 24.0          | 23.3  | 0.199          | 0.234        |          |
| Body-worn              | QPSK | OFF            | 15         | Rear          | 132322 | 1745.0      | 1             | 0         | 25.0          | 24.3  | 0.578          | <b>0.681</b> | 38       |
|                        |      |                |            |               |        |             | 50            | 0         | 24.0          | 23.3  | 0.455          | 0.536        |          |
|                        |      |                |            | Front         | 132322 | 1745.0      | 1             | 0         | 25.0          | 24.3  | 0.572          | 0.674        |          |
|                        |      |                |            |               |        |             | 50            | 0         | 24.0          | 23.3  | 0.447          | 0.526        |          |
| Hotspot                | QPSK | ON             | 10         | Rear          | 132322 | 1745.0      | 1             | 0         | 21.0          | 20.6  | 0.526          | 0.583        | 39       |
|                        |      |                |            |               |        |             | 50            | 0         | 21.0          | 20.5  | 0.530          | <b>0.595</b> |          |
|                        |      |                |            | Front         | 132322 | 1745.0      | 1             | 0         | 21.0          | 20.6  | 0.502          | 0.557        |          |
|                        |      |                |            |               |        |             | 50            | 0         | 21.0          | 20.5  | 0.499          | 0.560        |          |
|                        |      |                |            | Edge 2        | 132322 | 1745.0      | 1             | 0         | 21.0          | 20.6  | 0.115          | 0.128        |          |
|                        |      |                |            |               |        |             | 50            | 0         | 21.0          | 20.5  | 0.111          | 0.125        |          |
|                        |      |                |            | Edge 3        | 132322 | 1745.0      | 1             | 0         | 21.0          | 20.6  | 0.075          | 0.083        |          |
|                        |      |                |            |               |        |             | 50            | 0         | 21.0          | 20.5  | 0.071          | 0.080        |          |
|                        |      |                |            | Edge 4        | 132322 | 1745.0      | 1             | 0         | 21.0          | 20.6  | 0.072          | 0.080        |          |
|                        |      |                |            |               |        |             | 50            | 0         | 21.0          | 20.5  | 0.076          | 0.085        |          |

**10.18. Wi-Fi (DTS Band)**

| Frequency Band | Antenna | Mode           | RF Exposure Conditions | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Area Scan Max. SAR (W/kg) | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|----------------|---------|----------------|------------------------|------------|---------------|-------|-------------|---------------------------|---------------|-------|----------------|--------------|----------|
|                |         |                |                        |            |               |       |             |                           | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| 2.4GHz         | Chain 0 | 802.11b 1 Mbps | Head                   | 0          | Left Touch    | 6     | 2437.0      | 0.361                     | 13.7          | 13.2  | 0.302          | <b>0.339</b> | 40       |
|                |         |                |                        |            | Left Tilt     | 6     | 2437.0      | 0.232                     | 13.7          | 13.2  |                |              |          |
|                |         |                |                        |            | Right Touch   | 6     | 2437.0      | 0.132                     | 13.7          | 13.2  |                |              |          |
|                |         |                |                        |            | Right Tilt    | 6     | 2437.0      | 0.108                     | 13.7          | 13.2  |                |              |          |
|                |         |                | Body-worn              | 15         | Rear          | 6     | 2437.0      | 0.051                     | 13.7          | 13.2  | 0.035          | <b>0.039</b> | 41       |
|                |         |                |                        |            | Front         | 6     | 2437.0      | 0.040                     | 13.7          | 13.2  |                |              |          |
|                |         |                | Hotspot & Wi-Fi Direct | 10         | Rear          | 6     | 2437.0      | 0.257                     | 13.7          | 13.2  | 0.083          | <b>0.093</b> | 42       |
|                |         |                |                        |            | Front         | 6     | 2437.0      | 0.071                     | 13.7          | 13.2  |                |              |          |
|                |         |                |                        |            | Edge 1        | 6     | 2437.0      | 0.086                     | 13.7          | 13.2  |                |              |          |
|                |         |                |                        |            | Edge 2        | 6     | 2437.0      | 0.186                     | 13.7          | 13.2  |                |              |          |
| 2.4GHz         | Chain 1 | 802.11b 1 Mbps | Head                   | 0          | Left Touch    | 11    | 2462.0      | 0.122                     | 13.5          | 13.0  | 0.062          | <b>0.070</b> | 43       |
|                |         |                |                        |            | Left Tilt     | 11    | 2462.0      | 0.021                     | 13.5          | 13.0  |                |              |          |
|                |         |                |                        |            | Right Touch   | 11    | 2462.0      | 0.107                     | 13.5          | 13.0  |                |              |          |
|                |         |                |                        |            | Right Tilt    | 11    | 2462.0      | 0.025                     | 13.5          | 13.0  |                |              |          |
|                |         |                | Body-worn              | 15         | Rear          | 11    | 2462.0      | 0.042                     | 13.5          | 13.0  | 0.025          | <b>0.028</b> | 44       |
|                |         |                |                        |            | Front         | 11    | 2462.0      | 0.011                     | 13.5          | 13.0  |                |              |          |
|                |         |                | Hotspot & Wi-Fi Direct | 10         | Rear          | 11    | 2462.0      | 0.101                     | 13.5          | 13.0  | 0.059          | <b>0.066</b> | 45       |
|                |         |                |                        |            | Front         | 11    | 2462.0      | 0.023                     | 13.5          | 13.0  |                |              |          |
|                |         |                |                        |            | Edge 1        | 11    | 2462.0      | 0.007                     | 13.5          | 13.0  |                |              |          |
|                |         |                |                        |            | Edge 4        | 11    | 2462.0      | 0.051                     | 13.5          | 13.0  |                |              |          |

**10.19. Wi-Fi (U-NII Band)**

| Frequency Band   | Antenna | Mode                     | RF Exposure Conditions | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Area Scan Max. SAR (W/kg) | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|------------------|---------|--------------------------|------------------------|------------|---------------|-------|-------------|---------------------------|---------------|-------|----------------|--------------|----------|
|                  |         |                          |                        |            |               |       |             |                           | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| 5.3 GHz U-NII 2A | Chain 0 | 802.11ac VHT80 29.3 Mbps | Head                   | 0          | Left Touch    | 58    | 5290.0      | 0.291                     | 13.5          | 13.4  | 0.182          | <b>0.186</b> | 46       |
|                  |         |                          |                        |            | Left Tilt     | 58    | 5290.0      | 0.223                     | 13.5          | 13.4  |                |              |          |
|                  |         |                          |                        |            | Right Touch   | 58    | 5290.0      | 0.146                     | 13.5          | 13.4  |                |              |          |
|                  |         |                          |                        |            | Right Tilt    | 58    | 5290.0      | 0.127                     | 13.5          | 13.4  |                |              |          |
|                  |         |                          | Body-worn              | 15         | Rear          | 58    | 5290.0      | 0.356                     | 13.5          | 13.4  | 0.164          | <b>0.168</b> | 47       |
|                  |         |                          |                        |            | Front         | 58    | 5290.0      | 0.048                     | 13.5          | 13.4  |                |              |          |
| 5.3 GHz U-NII 2A | Chain 1 | 802.11ac VHT80 29.3 Mbps | Head                   | 0          | Left Touch    | 58    | 5290.0      | 0.560                     | 14.0          | 14.0  | 0.287          | <b>0.287</b> | 48       |
|                  |         |                          |                        |            | Left Tilt     | 58    | 5290.0      | 0.086                     | 14.0          | 14.0  |                |              |          |
|                  |         |                          |                        |            | Right Touch   | 58    | 5290.0      | 0.421                     | 14.0          | 14.0  |                |              |          |
|                  |         |                          |                        |            | Right Tilt    | 58    | 5290.0      | 0.112                     | 14.0          | 14.0  |                |              |          |
|                  |         |                          | Body-worn              | 15         | Rear          | 58    | 5290.0      | 0.183                     | 14.0          | 14.0  | 0.059          | <b>0.059</b> | 49       |
|                  |         |                          |                        |            | Front         | 58    | 5290.0      | 0.071                     | 14.0          | 14.0  |                |              |          |

| Frequency Band   | Antenna | Mode                     | RF Exposure Conditions | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Area Scan Max. SAR (W/kg) | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|------------------|---------|--------------------------|------------------------|------------|---------------|-------|-------------|---------------------------|---------------|-------|----------------|--------------|----------|
|                  |         |                          |                        |            |               |       |             |                           | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| 5.5 GHz U-NII 2C | Chain 0 | 802.11ac VHT80 29.3 Mbps | Head                   | 0          | Left Touch    | 122   | 5610.0      | 0.329                     | 13.5          | 13.5  | 0.202          | <b>0.202</b> | 50       |
|                  |         |                          |                        |            | Left Tilt     | 122   | 5610.0      | 0.139                     | 13.5          | 13.5  |                |              |          |
|                  |         |                          |                        |            | Right Touch   | 122   | 5610.0      | 0.093                     | 13.5          | 13.5  |                |              |          |
|                  |         |                          |                        |            | Right Tilt    | 122   | 5610.0      | 0.084                     | 13.5          | 13.5  |                |              |          |
|                  |         |                          | Body-worn              | 15         | Rear          | 122   | 5610.0      | 0.250                     | 13.5          | 13.5  | 0.087          | <b>0.087</b> | 51       |
|                  |         |                          |                        |            | Front         | 122   | 5610.0      | 0.062                     | 13.5          | 13.5  |                |              |          |
| 5.5 GHz U-NII 2C | Chain 1 | 802.11ac VHT80 29.3 Mbps | Head                   | 0          | Left Touch    | 138   | 5690.0      | 0.449                     | 14.0          | 14.0  | 0.268          | <b>0.268</b> | 52       |
|                  |         |                          |                        |            | Left Tilt     | 138   | 5690.0      | 0.049                     | 14.0          | 14.0  |                |              |          |
|                  |         |                          |                        |            | Right Touch   | 138   | 5690.0      | 0.471                     | 14.0          | 14.0  |                |              |          |
|                  |         |                          |                        |            | Right Tilt    | 138   | 5690.0      | 0.046                     | 14.0          | 14.0  |                |              |          |
|                  |         |                          | Body-worn              | 15         | Rear          | 138   | 5690.0      | 0.185                     | 14.0          | 14.0  | 0.060          | <b>0.060</b> | 53       |
|                  |         |                          |                        |            | Front         | 138   | 5690.0      | 0.065                     | 14.0          | 14.0  |                |              |          |

| Frequency Band  | Antenna | Mode                     | RF Exposure Conditions | Dist. (mm) | Test Position | Ch #. | Freq. (MHz) | Area Scan Max. SAR (W/kg) | Power (dBm)   |       | 1-g SAR (W/kg) |              | Plot No. |
|-----------------|---------|--------------------------|------------------------|------------|---------------|-------|-------------|---------------------------|---------------|-------|----------------|--------------|----------|
|                 |         |                          |                        |            |               |       |             |                           | Tune-up limit | Meas. | Meas.          | Scaled       |          |
| 5.8 GHz U-NII 3 | Chain 0 | 802.11ac VHT80 29.3 Mbps | Head                   | 0          | Left Touch    | 155   | 5775.0      | 0.528                     | 13.5          | 12.8  | 0.155          | <b>0.182</b> | 54       |
|                 |         |                          |                        |            | Left Tilt     | 155   | 5775.0      | 0.137                     | 13.5          | 12.8  |                |              |          |
|                 |         |                          |                        |            | Right Touch   | 155   | 5775.0      | 0.102                     | 13.5          | 12.8  |                |              |          |
|                 |         |                          |                        |            | Right Tilt    | 155   | 5775.0      | 0.118                     | 13.5          | 12.8  |                |              |          |
|                 |         |                          | Body-worn              | 15         | Rear          | 155   | 5775.0      | 0.234                     | 13.5          | 12.8  | 0.077          | <b>0.090</b> | 55       |
|                 |         |                          |                        |            | Front         | 155   | 5775.0      | 0.025                     | 13.5          | 12.8  |                |              |          |
| 5.8 GHz U-NII 3 | Chain 1 | 802.11ac VHT80 29.3 Mbps | Head                   | 0          | Left Touch    | 155   | 5775.0      | 0.432                     | 14.0          | 13.6  |                |              |          |
|                 |         |                          |                        |            | Left Tilt     | 155   | 5775.0      | 0.093                     | 14.0          | 13.6  |                |              |          |
|                 |         |                          |                        |            | Right Touch   | 155   | 5775.0      | 0.436                     | 14.0          | 13.6  | 0.168          | <b>0.184</b> | 56       |
|                 |         |                          |                        |            | Right Tilt    | 155   | 5775.0      | 0.090                     | 14.0          | 13.6  |                |              |          |
|                 |         |                          | Body-worn              | 15         | Rear          | 155   | 5775.0      | 0.146                     | 14.0          | 13.6  | 0.011          | <b>0.012</b> | 57       |
|                 |         |                          |                        |            | Front         | 155   | 5775.0      | 0.047                     | 14.0          | 13.6  |                |              |          |

**10.20. Bluetooth**

Maximum tune-up tolerance limit is 9.88 dBm. This power level qualifies for exclusion of SAR testing. Refer to §10.21 for Standalone SAR Test Exclusion Considerations & Estimated SAR.

## 10.21. Standalone SAR Test Exclusion Considerations & Estimated SAR

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ ,  
for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR, where

- $f_{(\text{GHz})}$  is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm is applied to determine SAR test exclusion.

When the standalone SAR test exclusion is applied to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

- $(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})/x}]$   
W/kg for test separation distances  $\leq 50$  mm;  
where  $x = 7.5$  for 1-g SAR, and  $x = 18.75$  for 10-g SAR.
- 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the test separation distances is  $> 50$  mm.

### Body-worn and Hotspot:

| RF Air interface | RF Exposure Conditions | Frequency (GHz) | Max. tune-up tolerance Power |      | Min. test separation distance (mm) | SAR test exclusion Result* | Estimated 1-g SAR (W/kg) |
|------------------|------------------------|-----------------|------------------------------|------|------------------------------------|----------------------------|--------------------------|
|                  |                        |                 | (dBm)                        | (mW) |                                    |                            |                          |
| Bluetooth        | Body-worn              | 2.480           | 9.88                         | 10   | 15                                 | 1.0                        | 0.140                    |
| Bluetooth        | Hotspot                | 2.480           | 9.88                         | 10   | 10                                 | 1.6                        | 0.210                    |

### Conclusion:

\*: The computed value is  $\leq 3$ ; therefore, this qualifies for Standalone SAR test exclusion.

## 11. SAR Measurement Variability

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

- 1) Repeated measurement is not required when the original highest measured SAR is  $< 0.8$  or  $2 \text{ W/kg}$  (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  $2 \text{ W/kg}$  (1-g or 10-g respectively), repeat that measurement once.
- 3) Perform a second repeated measurement only if the **ratio of largest to smallest SAR** for the original and first repeated measurements is  $> 1.20$  or when the original or repeated measurement is  $\geq 1.45$  or  $3.6 \text{ W/kg}$  (~ 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  $3.75 \text{ W/kg}$  (1-g or 10-g respectively) and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .

| Frequency Band (MHz) | Air Interface      | RF Exposure Conditions | Test Position | Repeated SAR (Yes/No) | Highest Measured SAR (W/kg) | First Repeated      |                               |
|----------------------|--------------------|------------------------|---------------|-----------------------|-----------------------------|---------------------|-------------------------------|
|                      |                    |                        |               |                       |                             | Measured SAR (W/kg) | Largest to Smallest SAR Ratio |
| 700                  | LTE Band 12        | Hotspot                | Rear          | No                    | 0.617                       | N/A                 | N/A                           |
|                      | LTE Band 13        | Head                   | Left Touch    | No                    | 0.508                       | N/A                 | N/A                           |
| 850                  | GSM 850            | Head                   | Left Touch    | No                    | 0.573                       | N/A                 | N/A                           |
|                      | WCDMA Band V       | Head                   | Left Touch    | No                    | 0.506                       | N/A                 | N/A                           |
|                      | LTE Band 26        | Hotspot                | Rear          | No                    | 0.436                       | N/A                 | N/A                           |
| 1700                 | WCDMA Band IV      | Body                   | Rear          | No                    | 0.630                       | N/A                 | N/A                           |
|                      | LTE Band 66        | Head                   | Right Touch   | No                    | 0.587                       | N/A                 | N/A                           |
| 1900                 | GSM 1900           | Hotspot                | Edge 3        | No                    | 0.616                       | N/A                 | N/A                           |
|                      | WCDMA Band II      | Head                   | Left Touch    | No                    | 0.753                       | N/A                 | N/A                           |
|                      | LTE Band 2         | Head                   | Left Touch    | No                    | 0.772                       | N/A                 | N/A                           |
|                      | LTE Band 25        | Hotspot                | Edge 3        | Yes                   | 0.867                       | 0.852               | 1.02                          |
| 2400                 | Wi-Fi 802.11b/g/n  | Head                   | Left Touch    | No                    | 0.302                       | N/A                 | N/A                           |
| 2500                 | LTE Band 7         | Head                   | Right Touch   | Yes                   | 0.880                       | 0.863               | 1.02                          |
| 2600                 | LTE Band 41        | Head                   | Right Touch   | No                    | 0.503                       | N/A                 | N/A                           |
| 5300                 | Wi-Fi 802.11a/n/ac | Head                   | Left Touch    | No                    | 0.287                       | N/A                 | N/A                           |
| 5600                 | Wi-Fi 802.11a/n/ac | Head                   | Left Touch    | No                    | 0.268                       | N/A                 | N/A                           |
| 5800                 | Wi-Fi 802.11a/n/ac | Head                   | Right Touch   | No                    | 0.168                       | 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  $< 1.20$ .

## 12. Simultaneous Transmission SAR Analysis

### Simultaneous Transmission Condition

| Case | Cellular      | WLAN Chain 0 / BT | WLAN Chain 1 |
|------|---------------|-------------------|--------------|
| 1    | GSM/GPRS/Edge | BT/BLE            | (None)       |
| 2    | GSM/GPRS/Edge | WLAN 2.4G         | (None)       |
| 3    | GSM/GPRS/Edge | WLAN 2.4G         | WLAN 2.4G    |
| 4    | GSM/GPRS/Edge | WLAN 2.4G         | WLAN 5G      |
| 5    | GSM/GPRS/Edge | WLAN 5G           | WLAN 5G      |
| 6    | GSM/GPRS/Edge | BT<br>WLAN 5G     | WLAN 5G      |
| 7    | UMTS/HSPA     | BT/BLE            | (None)       |
| 8    | UMTS/HSPA     | WLAN 2.4G         | (None)       |
| 9    | UMTS/HSPA     | WLAN 2.4G         | WLAN 2.4G    |
| 10   | UMTS/HSPA     | WLAN 2.4G         | WLAN 5G      |
| 11   | UMTS/HSPA     | WLAN 5G           | WLAN 5G      |
| 12   | UMTS/HSPA     | BT<br>WLAN 5G     | WLAN 5G      |
| 13   | LTE           | BT/BLE            | (None)       |
| 14   | LTE           | WLAN 2.4G         | (None)       |
| 15   | LTE           | WLAN 2.4G         | WLAN 2.4G    |
| 16   | LTE           | WLAN 2.4G         | WLAN 5G      |
| 17   | LTE           | WLAN 5G           | WLAN 5G      |
| 18   | LTE           | BT<br>WLAN 5G     | WLAN 5G      |
| 19   | (None)        | BT<br>WLAN 5G     | WLAN 5G      |

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

| RF Exposure conditions | Test Position | Standalone SAR (W/kg) |           |           |           |           |       | Σ 1-g SAR (W/kg) |           |            |            |              |                |               |          |
|------------------------|---------------|-----------------------|-----------|-----------|-----------|-----------|-------|------------------|-----------|------------|------------|--------------|----------------|---------------|----------|
|                        |               | WWAN                  |           | DTS       |           | U-NII     |       | BT               | WWAN + BT | WWAN + DTS | WWAN + DTS | WWAN + U-NII | WWAN+DTS+U-NII | WWAN+U-NII+BT | U-NII+BT |
|                        |               | ①                     | Chain 0 ② | Chain 1 ③ | Chain 0 ④ | Chain 1 ⑤ | ⑥     | ① + ⑥            | ① + ②     | ① + ② + ③  | ① + ④ + ⑤  | ① + ② + ⑤    | ① + ④ + ⑤ + ⑥  | ④ + ⑤ + ⑥     |          |
| Head                   | Left Touch    | 0.876                 | 0.339     | 0.070     | 0.202     | 0.287     |       |                  | 1.215     | 1.285      | 1.365      | 1.502        |                | 0.489         |          |
|                        | Left Tilt     | 0.509                 | 0.339     | 0.070     | 0.202     | 0.287     |       |                  | 0.848     | 0.918      | 0.998      | 1.135        |                | 0.489         |          |
|                        | Right Touch   | 0.967                 | 0.339     | 0.070     | 0.202     | 0.287     |       |                  | 1.306     | 1.376      | 1.456      | 1.593        |                | 0.489         |          |
|                        | Right Tilt    | 0.394                 | 0.339     | 0.070     | 0.202     | 0.287     |       |                  | 0.733     | 0.803      | 0.883      | 1.020        |                | 0.489         |          |
| Body-worn              | Rear          | 0.775                 | 0.039     | 0.028     | 0.168     | 0.060     | 0.140 | 0.915            | 0.814     | 0.842      | 1.003      | 0.874        | 1.143          | 0.368         |          |
|                        | Front         | 0.757                 | 0.039     | 0.028     | 0.168     | 0.060     | 0.140 | 0.897            | 0.796     | 0.824      | 0.985      | 0.856        | 1.125          | 0.368         |          |
| Hotspot                | Rear          | 0.705                 | 0.093     | 0.066     |           |           | 0.210 | 0.915            | 0.798     | 0.864      |            |              |                |               |          |
|                        | Front         | 0.648                 | 0.093     | 0.066     |           |           | 0.210 | 0.858            | 0.741     | 0.807      |            |              |                |               |          |
|                        | Edge 1        |                       | 0.093     | 0.066     |           |           | 0.210 | 0.210            | 0.093     | 0.159      |            |              |                |               |          |
|                        | Edge 2        | 0.624                 | 0.093     |           |           |           | 0.210 | 0.834            | 0.717     | 0.717      |            |              |                |               |          |
|                        | Edge 3        | 0.979                 |           |           |           |           |       | 0.979            | 0.979     | 0.979      |            |              |                |               |          |
|                        | Edge 4        | 0.681                 |           | 0.066     |           |           |       |                  | 0.681     | 0.747      |            |              |                |               |          |

#### Conclusion:

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

## **Appendixes**

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

**11760905-S1V1 SAR\_App A Setup Photos**

**11760905-S1V1 SAR\_App B System Check Plots**

**11760905-S1V1 SAR\_App C Highest Test Plots**

**11760905-S1V1 SAR\_App D Tissue Ingredients**

**11760905-S1V1 SAR\_App E Probe Cal. Certificates**

**11760905-S1V1 SAR\_App F Dipole Cal. Certificates**

**END OF REPORT**