



## **SAR EVALUATION REPORT**

**FCC 47 CFR § 2.1093  
IEEE Std 1528-2013  
(Class II Permissive Change)**

*For*  
**Wireless Module  
(Tested inside of Panasonic Tablet PC CF-33)**

**Model: WL15A  
FCC ID: ACJ9TGWL15A**

**Report Number: 11581112H-A  
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NVLAP LAB CODE: 200572-0

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Revision History

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## 1. Attestation of Test Results

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                 |              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|--------------|
| Applicant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | PANASONIC CORPORATION OF NORTH AMERICA                          |              |
| DUT description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Wireless Module<br>(Tested inside of Panasonic Tablet PC CF-33) |              |
| Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | WL15A                                                           |              |
| Test device is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | An identical prototype                                          |              |
| Device category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Portable                                                        |              |
| Exposure category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | General Population/Uncontrolled Exposure                        |              |
| Date tested                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | March 29, 2017 to April 07, 2017                                |              |
| Applicable Standards                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                 | Test Results |
| FCC 47 CFR § 2.1093<br>Published RF exposure KDB procedures<br>IEEE Std 1528-2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                 | Pass         |
| <ol style="list-style-type: none"><li>1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.</li><li>2. The results in this report apply only to the sample tested.</li><li>3. This sample tested is in compliance with the limits of the above regulation.</li><li>4. The test results in this report are traceable to the national or international standards.</li><li>5. This test report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.</li></ol> |                                                                 |              |

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## 1.1. Summary of Highest 1-g SAR Results

Worst Case SAR data for each Frequency Band

| RF Exposure Rule                    | Freq. Range     | Highest Reported SAR                                                                                                                                                                                      | Limit       |
|-------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 15.247                              | 2400-2483.5 MHz | WLAN: 0.854 W/kg (Edge 4 tilt)<br>Bluetooth: 0.205 W/kg (Edge 2 tilt)                                                                                                                                     | 1.6<br>W/kg |
| 15.407                              | 5150-5350 MHz   | Body: 1.186 W/kg (Edge 2 tilt)                                                                                                                                                                            |             |
|                                     | 5470-5725 MHz   | Body: 1.133 W/kg (Edge 2 tilt)                                                                                                                                                                            |             |
|                                     | 5725-5850 MHz   | Body: 0.972 W/kg (Edge 2 tilt)                                                                                                                                                                            |             |
| Simultaneous Transmission Condition |                 | 1.582 W/kg (refer to Section 14)<br>(The highest across exposure conditions)<br>* All WWAN 1-g SAR values were taken from results recorded in SAR report 11506860H-A, submitted under FCC ID ACJ9TGWW16A. |             |

### LEGEND:

- Edge 1 = Top Edge(Tablet mode)
- Edge 2 = Left Edge(Tablet mode)
- Edge 2 tilt = Left Edge tilt (Tablet mode)
- Edge 3 = Bottom Edge(Tablet mode)
- Edge 4 = Right Edge(Tablet mode)
- Edge 4 tilt = Right Edge tilt (Tablet mode)
- Rear = Rear of display (Tablet mode)

## 2. Test Methodology

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:

- o 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- o 865664 D02 SAR Reporting v01r02
- o 447498 D01 General RF Exposure Guidance v06
- o 248227 D01 802.11 Wi-Fi SAR v02r02
- o 616217 D04 SAR for laptop and tablets v01r02

Additional Guidance: Manufacturer KDB inquiry

- o Test position about Edge2 tilt and Edge4 tilt

## 3. Facilities and Accreditation

\*Shielded room for SAR testings

The test sites and measurement facilities used to collect data are located at 4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN.

UL Japan, Inc. is accredited by NVLAP, Laboratory Code 200572-0

The full scope of accreditation can be viewed at

<http://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap>

## 4. Calibration and Uncertainty

### 4.1.Measuring Instrument Calibration

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

| Control No.  | Instrument                     | Manufacturer                  | Model No    | Serial No | Test Item | Calibration Date<br>* Interval(month) |
|--------------|--------------------------------|-------------------------------|-------------|-----------|-----------|---------------------------------------|
| MNA-03       | Vector Reflectometer           | Copper Mountain Technologies  | PLANAR R140 | 0030913   | SAR       | 2016/04/22 * 12                       |
| MDPK-03      | Dielectric assessment kit      | Schmid&Partner Engineering AG | DAK-3.5     | 0008      | SAR       | 2016/04/12 * 12                       |
| MOS-37       | Digital thermometer            | LKM electronic                | DTM3000     | —         | SAR       | 2016/07/28 * 12                       |
| COTS-MSAR-04 | Dielectric assessment software | Schmid&Partner Engineering AG | DAK         | —         | SAR       | —                                     |

## System check

| Control No.  | Instrument                   | Manufacturer                  | Model No                        | Serial No           | Test Item | Calibration Date<br>* Interval(month) |
|--------------|------------------------------|-------------------------------|---------------------------------|---------------------|-----------|---------------------------------------|
| MDAE-03      | Data Acquisition Electronics | Schmid&Partner Engineering AG | DAE4                            | 1372                | SAR       | 2016/06/10 * 12                       |
| MPB-09       | Dosimetric E-Field Probe     | Schmid&Partner Engineering AG | EX3DV4                          | 3922                | SAR       | 2016/06/16 * 12                       |
| MPF-04       | 2mm Oval Flat Phantom        | Schmid&Partner Engineering AG | QDOVA001BB                      | 1207                | SAR       | 2016/05/07 * 12                       |
| MDH-03       | Device holder                | Schmid&Partner Engineering AG | Mounting device for transmitter | -                   | SAR       | Pre Check                             |
| MOS-35       | Digital thermometer          | HANNA                         | Checktemp 4                     | -                   | SAR       | 2016/07/28 * 12                       |
| COTS-MSAR-03 | Dasy5                        | Schmid&Partner Engineering AG | DASY5                           | -                   | SAR       | -                                     |
| MRBT-04      | SAR robot                    | Schmid&Partner Engineering AG | TX60 Lspeag                     | F13/5PPLA1/A<br>/01 | SAR       | 2016/06/01 * 12                       |
| MDAE-02      | Data Acquisition Electronics | Schmid&Partner Engineering AG | DAE4                            | 1369                | SAR       | 2016/05/13 * 12                       |
| MPB-08       | Dosimetric E-Field Probe     | Schmid&Partner Engineering AG | EX3DV4                          | 3917                | SAR       | 2016/5/12 * 12                        |
| MPF-02       | 2mm Oval Flat Phantom        | Schmid&Partner Engineering AG | QDOVA001BB                      | 1045                | SAR       | 2016/05/07 * 12                       |
| MDH-01       | Device holder                | Schmid&Partner Engineering AG | Mounting device for transmitter | -                   | SAR       | Pre Check                             |
| MOS-26       | Thermo-Hygrometer            | CUSTOM                        | CTH-201                         | A08Q29              | SAR       | 2016/04/19 * 12                       |
| MRBT-02      | SAR robot                    | Schmid&Partner Engineering AG | TX60 Lspeag                     | F10/5E3LA1/A<br>/01 | SAR       | 2016/04/30 * 12                       |
| MPM-11       | Dual Power Meter             | Agilent                       | E4419B                          | MY45102060          | SAR       | 2016/08/24 * 12                       |
| MPSE-15      | Power sensor                 | Agilent                       | E9301A                          | MY41498311          | SAR       | 2016/08/24 * 12                       |
| MPSE-16      | Power sensor                 | Agilent                       | E9301A                          | MY41498313          | SAR       | 2016/08/24 * 12                       |
| MRFA-24      | Pre Amplifier                | R&K                           | R&K CGA020M602-2633R            | B30550              | SAR       | 2016/06/27 * 12                       |
| MSG-10       | Signal Generator             | Agilent                       | N5181A                          | MY47421098          | SAR       | 2016/11/09 * 12                       |
| MAT-78       | Attenuator                   | Telegartner                   | J01156A0011                     | 0042294119          | SAR       | Pre Check                             |

| Control No.  | Instrument                      | Manufacturer                  | Model No        | Serial No     | Test Item                                 | Calibration Date * Interval(month) |
|--------------|---------------------------------|-------------------------------|-----------------|---------------|-------------------------------------------|------------------------------------|
| MPM-15       | Power Meter                     | Agilent                       | N1914A          | MY53060017    | SAR                                       | 2016/06/27 * 12                    |
| MPSE-21      | Power sensor                    | Agilent                       | N8482H          | MY52460010    | SAR                                       | 2016/06/27 * 12                    |
| MHDC-12      | Dual Directional Coupler        | Hewlett Packard               | 772D            | 2839A0016     | SAR(2-18GHz)                              | Pre Check                          |
| MDA-07       | Dipole Antenna                  | Schmid&Partner Engineering AG | D2450V2         | 713           | SAR(D2450)                                | 2016/09/13 * 12                    |
| MMSL2450     | Tissue simulation liquid (Body) | Schmid&Partner Engineering AG | MSL2450V2       | SL AA 245 BA  | SAR*Daily Check<br>Target Value $\pm 5\%$ | Pre Check                          |
| MDA-08       | Dipole Antenna                  | Schmid&Partner Engineering AG | D5GHzV2         | 1020          | SAR(D5G)                                  | 2017/01/06 * 12                    |
| MMBBL3.5-5.8 | Tissue simulation liquid (Body) | Schmid&Partner Engineering AG | MBBL3500-5800V5 | SL AAM 501 DA | SAR*Daily Check<br>Target Value $\pm 5\%$ | Pre Check                          |

## Other

| Control No. | Instrument       | Manufacturer | Model No  | Serial No  | Test Item | Calibration Date * Interval(month) |
|-------------|------------------|--------------|-----------|------------|-----------|------------------------------------|
| MPM-16      | Power Meter      | Agilent      | 8990B     | MY51000271 | Power     | 2016/04/07 * 12                    |
| MPSE-22     | Power sensor     | Agilent      | N1923A    | MY54070003 | Power     | 2016/04/07 * 12                    |
| MPSE-23     | Power sensor     | Agilent      | N1923A    | MY54070004 | Power     | 2016/04/07 * 12                    |
| MAT-56      | Attenuator(10dB) | Suhner       | 6810.19.A | -          | Power     | 2016/12/14 * 12                    |
| MAT-57      | Attenuator(10dB) | Suhner       | 6810.19.A | -          | Power     | 2016/12/15 * 12                    |

The expiration date of the calibration is the end of the expired month.

All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.

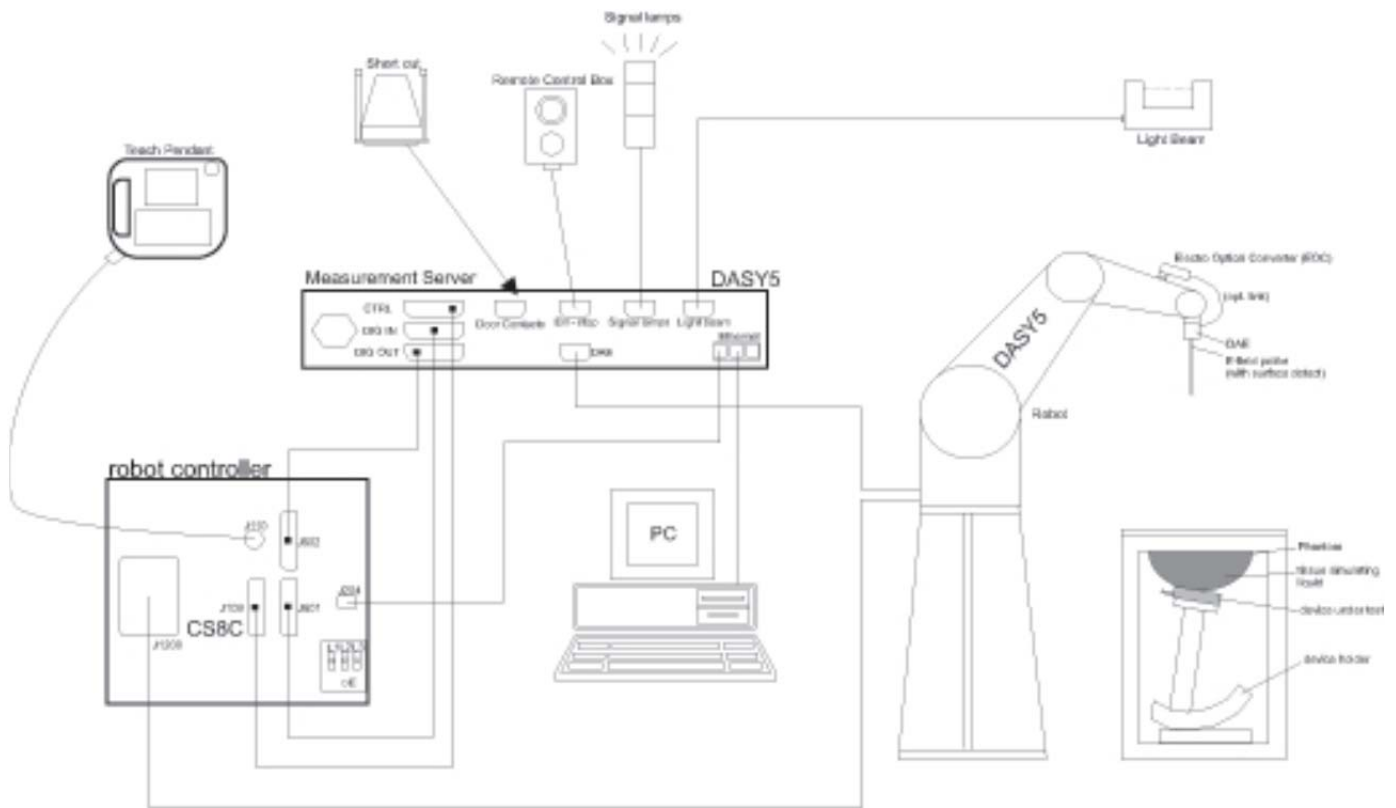
As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

## 4.2.Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval.

## 5. Measurement System Description and Setup

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.

## 6. SAR Measurement Procedure

### 6.1. Normal SAR Measurement Procedure

#### Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

#### Step 2: Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE Standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

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

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

### Step 3: Zoom Scan

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

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

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

## 6.2. Volume Scan Procedures

### Step 1: Repeat Step 1-4 in Section 6.1

### Step 2: Volume Scan

Volume Scans are used to assess peak SAR and averaged SAR measurements in largely extended 3-dimensional volumes within any phantom. This measurement does not need any previous area scan. The grid can be anchored to a user specific point or to the current probe location.

### Step 3: 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.

## 7. Device Under Test

|                                                                                 |                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wireless Module<br>(Tested inside of Panasonic Tablet PC CF-33)<br>Model: WL15A |                                                                                                                                                                                                     |
| Operating Configuration(s)                                                      | <ul style="list-style-type: none"><li>Tablet modes</li></ul>                                                                                                                                        |
| Exposure Condition(s)                                                           | <ul style="list-style-type: none"><li>The device is used in close proximity to the body. Specific details of the required test positions are provided in Section 8 "Exposure Conditions".</li></ul> |
| Accessory                                                                       | <ul style="list-style-type: none"><li>None</li></ul>                                                                                                                                                |

### 7.1. Band and Air Interfaces

|                    |                                                                                                                                                                                                                                                                                                                           |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tx Frequency Bands | <ul style="list-style-type: none"><li>802.11a/b/g/n/ac: 2412 - 2472 MHz, b / g / HT20 / HT40<br/>5180 - 5240 MHz, a / HT20 / HT40 / HT80<br/>5260 - 5320 MHz, a / HT20 / HT40 / HT80<br/>5500 - 5720 MHz, a / HT20 / HT40 / HT80<br/>5745 - 5825 MHz, a / HT20 / HT40 / HT80</li><li>Bluetooth: 2402 - 2480 MHz</li></ul> |
| Modulation         | <ul style="list-style-type: none"><li>802.11a/b/g/n/ac : BPSK, QPSK, CCK, 16-QAM and 64-QAM and 256-QAM</li><li>Bluetooth 4.0+LE: GFSK, DQPSK, 8-DPSK</li></ul>                                                                                                                                                           |
| Duty Cycle         | <ul style="list-style-type: none"><li>WLAN: 100%</li><li>Bluetooth 89%</li></ul>                                                                                                                                                                                                                                          |

### 7.2. Testing Rationale

Test selection was performed in accordance with KDB248227 D01.

The standalone (SISO) SAR results were considered acceptable for the MIMO simultaneous transmission analysis as the MIMO power does not exceed the SISO power.

The antenna separation distance will not be less than 50mm.

Bluetooth transmits using the WLAN Aux Antenna. Bluetooth can transmit simultaneously with the WLAN Main Antenna. Bluetooth cannot transmit simultaneously with the WLAN Aux Antenna in WLAN MIMO mode.

## Supported Simultaneous Scenarios

### WWAN + WLAN 2.4 GHz SISO (1 Tx)

| Usage Scenario | Modes                     | Mode of Operation | BAND | WCDMA | HSDPA | HSUPA | HSPA+ | DC-HSPA | LTE | WLAN 2.4GHz Main | WLAN 2.4GHz Aux | WLAN 5 GHz Bands Main | WLAN 5 GHz Bands Aux | BT 2.4 GHz |
|----------------|---------------------------|-------------------|------|-------|-------|-------|-------|---------|-----|------------------|-----------------|-----------------------|----------------------|------------|
| Body SAR       | WWAN + 2.4 GHz Bands WLAN | W-CDMA            | 2    | YES   | No    | No    | No    | No      | No  | YES              | No              | No                    | No                   | No         |
|                |                           | W-CDMA            | 4    | YES   | No    | No    | No    | No      | No  | YES              | No              | No                    | No                   | No         |
|                |                           | W-CDMA            | 5    | YES   | No    | No    | No    | No      | No  | YES              | No              | No                    | No                   | No         |
|                |                           | HSDPA             | 2    | No    | YES   | No    | No    | No      | No  | YES              | No              | No                    | No                   | No         |
|                |                           | HSDPA             | 4    | No    | YES   | No    | No    | No      | No  | YES              | No              | No                    | No                   | No         |
|                |                           | HSDPA             | 5    | No    | YES   | No    | No    | No      | No  | YES              | No              | No                    | No                   | No         |
|                |                           | HSUPA             | 2    | No    | No    | YES   | No    | No      | No  | YES              | No              | No                    | No                   | No         |
|                |                           | HSUPA             | 4    | No    | No    | YES   | No    | No      | No  | YES              | No              | No                    | No                   | No         |
|                |                           | HSUPA             | 5    | No    | No    | YES   | No    | No      | No  | YES              | No              | No                    | No                   | No         |
|                |                           | HSPA+             | 2    | No    | No    | No    | YES   | No      | No  | YES              | No              | No                    | No                   | No         |
|                |                           | HSPA+             | 4    | No    | No    | No    | YES   | No      | No  | YES              | No              | No                    | No                   | No         |
|                |                           | HSPA+             | 5    | No    | No    | No    | YES   | No      | No  | YES              | No              | No                    | No                   | No         |
|                |                           | DC-HSDPA          | 2    | No    | No    | No    | No    | YES     | No  | YES              | No              | No                    | No                   | No         |
|                |                           | DC-HSDPA          | 4    | No    | No    | No    | No    | YES     | No  | YES              | No              | No                    | No                   | No         |
|                |                           | DC-HSDPA          | 5    | No    | No    | No    | No    | YES     | No  | YES              | No              | No                    | No                   | No         |
|                |                           | LTE               | 2    | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | No         |
|                |                           | LTE               | 4    | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | No         |
|                |                           | LTE               | 5    | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | No         |
|                |                           | LTE               | 7    | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | No         |
|                |                           | LTE               | 12   | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | No         |
|                |                           | LTE               | 13   | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | No         |
|                |                           | LTE               | 25   | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | No         |
|                |                           | LTE               | 26   | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | No         |
|                |                           | LTE               | 41   | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | No         |
|                |                           | W-CDMA            | 2    | YES   | No    | No    | No    | No      | No  | No               | YES             | No                    | No                   | No         |
|                |                           | W-CDMA            | 4    | YES   | No    | No    | No    | No      | No  | No               | YES             | No                    | No                   | No         |
|                |                           | W-CDMA            | 5    | YES   | No    | No    | No    | No      | No  | No               | YES             | No                    | No                   | No         |
|                |                           | HSDPA             | 2    | No    | YES   | No    | No    | No      | No  | No               | YES             | No                    | No                   | No         |
|                |                           | HSDPA             | 4    | No    | YES   | No    | No    | No      | No  | No               | YES             | No                    | No                   | No         |
|                |                           | HSDPA             | 5    | No    | YES   | No    | No    | No      | No  | No               | YES             | No                    | No                   | No         |
|                |                           | HSUPA             | 2    | No    | No    | YES   | No    | No      | No  | No               | YES             | No                    | No                   | No         |
|                |                           | HSUPA             | 4    | No    | No    | YES   | No    | No      | No  | No               | YES             | No                    | No                   | No         |
|                |                           | HSUPA             | 5    | No    | No    | YES   | No    | No      | No  | No               | YES             | No                    | No                   | No         |
|                |                           | HSPA+             | 2    | No    | No    | No    | YES   | No      | No  | No               | YES             | No                    | No                   | No         |
|                |                           | HSPA+             | 4    | No    | No    | No    | YES   | No      | No  | No               | YES             | No                    | No                   | No         |
|                |                           | HSPA+             | 5    | No    | No    | No    | YES   | No      | No  | No               | YES             | No                    | No                   | No         |
|                |                           | DC-HSDPA          | 2    | No    | No    | No    | No    | YES     | No  | No               | YES             | No                    | No                   | No         |
|                |                           | DC-HSDPA          | 4    | No    | No    | No    | No    | YES     | No  | No               | YES             | No                    | No                   | No         |
|                |                           | DC-HSDPA          | 5    | No    | No    | No    | No    | YES     | No  | No               | YES             | No                    | No                   | No         |
|                |                           | LTE               | 2    | No    | No    | No    | No    | No      | YES | No               | YES             | No                    | No                   | No         |
|                |                           | LTE               | 4    | No    | No    | No    | No    | No      | YES | No               | YES             | No                    | No                   | No         |
|                |                           | LTE               | 5    | No    | No    | No    | No    | No      | YES | No               | YES             | No                    | No                   | No         |
|                |                           | LTE               | 7    | No    | No    | No    | No    | No      | YES | No               | YES             | No                    | No                   | No         |
|                |                           | LTE               | 12   | No    | No    | No    | No    | No      | YES | No               | YES             | No                    | No                   | No         |
|                |                           | LTE               | 13   | No    | No    | No    | No    | No      | YES | No               | YES             | No                    | No                   | No         |
|                |                           | LTE               | 25   | No    | No    | No    | No    | No      | YES | No               | YES             | No                    | No                   | No         |
|                |                           | LTE               | 26   | No    | No    | No    | No    | No      | YES | No               | YES             | No                    | No                   | No         |
|                |                           | LTE               | 41   | No    | No    | No    | No    | No      | YES | No               | YES             | No                    | No                   | No         |

## WWAN + WLAN 5 GHz Bands SISO (1 Tx)

| Usage Scenario | Modes                   | Mode of Operation | BAND | WCDMA | HSDPA | HSUPA | HSPA+ | DC-HSPA | LTE | WLAN 2.4GHz Main | WLAN 2.4GHz Aux | WLAN 5 GHz Bands Main | WLAN 5 GHz Bands Aux | BT 2.4 GHz |
|----------------|-------------------------|-------------------|------|-------|-------|-------|-------|---------|-----|------------------|-----------------|-----------------------|----------------------|------------|
| Body SAR       | WWAN + 5 GHz Bands WLAN | W-CDMA            | 2    | YES   | No    | No    | No    | No      | No  | No               | No              | YES                   | No                   | No         |
|                |                         | W-CDMA            | 4    | YES   | No    | No    | No    | No      | No  | No               | No              | YES                   | No                   | No         |
|                |                         | W-CDMA            | 5    | YES   | No    | No    | No    | No      | No  | No               | No              | YES                   | No                   | No         |
|                |                         | HSDPA             | 2    | No    | YES   | No    | No    | No      | No  | No               | No              | YES                   | No                   | No         |
|                |                         | HSDPA             | 4    | No    | YES   | No    | No    | No      | No  | No               | No              | YES                   | No                   | No         |
|                |                         | HSDPA             | 5    | No    | YES   | No    | No    | No      | No  | No               | No              | YES                   | No                   | No         |
|                |                         | HSUPA             | 2    | No    | No    | YES   | No    | No      | No  | No               | No              | YES                   | No                   | No         |
|                |                         | HSUPA             | 4    | No    | No    | YES   | No    | No      | No  | No               | No              | YES                   | No                   | No         |
|                |                         | HSUPA             | 5    | No    | No    | YES   | No    | No      | No  | No               | No              | YES                   | No                   | No         |
|                |                         | HSPA+             | 2    | No    | No    | No    | YES   | No      | No  | No               | No              | YES                   | No                   | No         |
|                |                         | HSPA+             | 4    | No    | No    | No    | YES   | No      | No  | No               | No              | YES                   | No                   | No         |
|                |                         | HSPA+             | 5    | No    | No    | No    | YES   | No      | No  | No               | No              | YES                   | No                   | No         |
|                |                         | DC-HSDPA          | 2    | No    | No    | No    | No    | YES     | No  | No               | No              | YES                   | No                   | No         |
|                |                         | DC-HSDPA          | 4    | No    | No    | No    | No    | YES     | No  | No               | No              | YES                   | No                   | No         |
|                |                         | DC-HSDPA          | 5    | No    | No    | No    | No    | YES     | No  | No               | No              | YES                   | No                   | No         |
|                |                         | LTE               | 2    | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | No         |
|                |                         | LTE               | 4    | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | No         |
|                |                         | LTE               | 5    | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | No         |
|                |                         | LTE               | 7    | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | No         |
|                |                         | LTE               | 12   | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | No         |
|                |                         | LTE               | 13   | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | No         |
|                |                         | LTE               | 25   | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | No         |
|                |                         | LTE               | 26   | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | No         |
|                |                         | LTE               | 41   | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | No         |
|                |                         | W-CDMA            | 2    | YES   | No    | No    | No    | No      | No  | No               | No              | No                    | YES                  | No         |
|                |                         | W-CDMA            | 4    | YES   | No    | No    | No    | No      | No  | No               | No              | No                    | YES                  | No         |
|                |                         | W-CDMA            | 5    | YES   | No    | No    | No    | No      | No  | No               | No              | No                    | YES                  | No         |
|                |                         | HSDPA             | 2    | No    | YES   | No    | No    | No      | No  | No               | No              | No                    | YES                  | No         |
|                |                         | HSDPA             | 4    | No    | YES   | No    | No    | No      | No  | No               | No              | No                    | YES                  | No         |
|                |                         | HSDPA             | 5    | No    | YES   | No    | No    | No      | No  | No               | No              | No                    | YES                  | No         |
|                |                         | HSUPA             | 2    | No    | No    | YES   | No    | No      | No  | No               | No              | No                    | YES                  | No         |
|                |                         | HSUPA             | 4    | No    | No    | YES   | No    | No      | No  | No               | No              | No                    | YES                  | No         |
|                |                         | HSUPA             | 5    | No    | No    | YES   | No    | No      | No  | No               | No              | No                    | YES                  | No         |
|                |                         | HSPA+             | 2    | No    | No    | No    | YES   | No      | No  | No               | No              | No                    | YES                  | No         |
|                |                         | HSPA+             | 4    | No    | No    | No    | YES   | No      | No  | No               | No              | No                    | YES                  | No         |
|                |                         | HSPA+             | 5    | No    | No    | No    | YES   | No      | No  | No               | No              | No                    | YES                  | No         |
|                |                         | DC-HSDPA          | 2    | No    | No    | No    | No    | YES     | No  | No               | No              | No                    | YES                  | No         |
|                |                         | DC-HSDPA          | 4    | No    | No    | No    | No    | YES     | No  | No               | No              | No                    | YES                  | No         |
|                |                         | DC-HSDPA          | 5    | No    | No    | No    | No    | YES     | No  | No               | No              | No                    | YES                  | No         |
|                |                         | LTE               | 2    | No    | No    | No    | No    | No      | YES | No               | No              | No                    | YES                  | No         |
|                |                         | LTE               | 4    | No    | No    | No    | No    | No      | YES | No               | No              | No                    | YES                  | No         |
|                |                         | LTE               | 5    | No    | No    | No    | No    | No      | YES | No               | No              | No                    | YES                  | No         |
|                |                         | LTE               | 7    | No    | No    | No    | No    | No      | YES | No               | No              | No                    | YES                  | No         |
|                |                         | LTE               | 12   | No    | No    | No    | No    | No      | YES | No               | No              | No                    | YES                  | No         |
|                |                         | LTE               | 13   | No    | No    | No    | No    | No      | YES | No               | No              | No                    | YES                  | No         |
|                |                         | LTE               | 25   | No    | No    | No    | No    | No      | YES | No               | No              | No                    | YES                  | No         |
|                |                         | LTE               | 26   | No    | No    | No    | No    | No      | YES | No               | No              | No                    | YES                  | No         |
|                |                         | LTE               | 41   | No    | No    | No    | No    | No      | YES | No               | No              | No                    | YES                  | No         |

## WWAN + Bluetooth

| Usage Scenario | Modes            | Mode of Operation | BAND | WCDMA | HSDPA | HSUPA | HSPA+ | DC-HSPA | LTE | WLAN 2.4GHz Main | WLAN 2.4GHz Aux | WLAN 5 GHz Bands Main | WLAN 5 GHz Bands Aux | BT 2.4 GHz |
|----------------|------------------|-------------------|------|-------|-------|-------|-------|---------|-----|------------------|-----------------|-----------------------|----------------------|------------|
| Body SAR       | WWAN + Bluetooth | W-CDMA            | 2    | YES   | No    | No    | No    | No      | No  | No               | No              | No                    | No                   | YES        |
|                |                  | W-CDMA            | 4    | YES   | No    | No    | No    | No      | No  | No               | No              | No                    | No                   | YES        |
|                |                  | W-CDMA            | 5    | YES   | No    | No    | No    | No      | No  | No               | No              | No                    | No                   | YES        |
|                |                  | HSDPA             | 2    | No    | YES   | No    | No    | No      | No  | No               | No              | No                    | No                   | YES        |
|                |                  | HSDPA             | 4    | No    | YES   | No    | No    | No      | No  | No               | No              | No                    | No                   | YES        |
|                |                  | HSDPA             | 5    | No    | YES   | No    | No    | No      | No  | No               | No              | No                    | No                   | YES        |
|                |                  | HSUPA             | 2    | No    | No    | YES   | No    | No      | No  | No               | No              | No                    | No                   | YES        |
|                |                  | HSUPA             | 4    | No    | No    | YES   | No    | No      | No  | No               | No              | No                    | No                   | YES        |
|                |                  | HSUPA             | 5    | No    | No    | YES   | No    | No      | No  | No               | No              | No                    | No                   | YES        |
|                |                  | HSPA+             | 2    | No    | No    | No    | YES   | No      | No  | No               | No              | No                    | No                   | YES        |
|                |                  | HSPA+             | 4    | No    | No    | No    | YES   | No      | No  | No               | No              | No                    | No                   | YES        |
|                |                  | HSPA+             | 5    | No    | No    | No    | YES   | No      | No  | No               | No              | No                    | No                   | YES        |
|                |                  | DC-HSDPA          | 2    | No    | No    | No    | No    | YES     | No  | No               | No              | No                    | No                   | YES        |
|                |                  | DC-HSDPA          | 4    | No    | No    | No    | No    | YES     | No  | No               | No              | No                    | No                   | YES        |
|                |                  | DC-HSDPA          | 5    | No    | No    | No    | No    | YES     | No  | No               | No              | No                    | No                   | YES        |
|                |                  | LTE               | 2    | No    | No    | No    | No    | No      | YES | No               | No              | No                    | No                   | YES        |
|                |                  | LTE               | 4    | No    | No    | No    | No    | No      | YES | No               | No              | No                    | No                   | YES        |
|                |                  | LTE               | 5    | No    | No    | No    | No    | No      | YES | No               | No              | No                    | No                   | YES        |
|                |                  | LTE               | 7    | No    | No    | No    | No    | No      | YES | No               | No              | No                    | No                   | YES        |
|                |                  | LTE               | 12   | No    | No    | No    | No    | No      | YES | No               | No              | No                    | No                   | YES        |
|                |                  | LTE               | 13   | No    | No    | No    | No    | No      | YES | No               | No              | No                    | No                   | YES        |
|                |                  | LTE               | 25   | No    | No    | No    | No    | No      | YES | No               | No              | No                    | No                   | YES        |
|                |                  | LTE               | 26   | No    | No    | No    | No    | No      | YES | No               | No              | No                    | No                   | YES        |
|                |                  | LTE               | 41   | No    | No    | No    | No    | No      | YES | No               | No              | No                    | No                   | YES        |

## WWAN + WLAN SISO (1 Tx) + Bluetooth

| Usage Scenario | Modes                                 | Mode of Operation | BAND | WCDMA | HSDPA | HSUPA | HSPA+ | DC-HSPA | LTE | WLAN 2.4GHz Main | WLAN 2.4GHz Aux | WLAN 5 GHz Bands Main | WLAN 5 GHz Bands Aux | BT 2.4 GHz |
|----------------|---------------------------------------|-------------------|------|-------|-------|-------|-------|---------|-----|------------------|-----------------|-----------------------|----------------------|------------|
| Body SAR       | WWAN + 2.4 GHz Bands WLAN + Bluetooth | W-CDMA            | 2    | YES   | No    | No    | No    | No      | No  | YES              | No              | No                    | No                   | YES        |
|                |                                       | W-CDMA            | 4    | YES   | No    | No    | No    | No      | No  | YES              | No              | No                    | No                   | YES        |
|                |                                       | W-CDMA            | 5    | YES   | No    | No    | No    | No      | No  | YES              | No              | No                    | No                   | YES        |
|                |                                       | HSDPA             | 2    | No    | YES   | No    | No    | No      | No  | YES              | No              | No                    | No                   | YES        |
|                |                                       | HSDPA             | 4    | No    | YES   | No    | No    | No      | No  | YES              | No              | No                    | No                   | YES        |
|                |                                       | HSDPA             | 5    | No    | YES   | No    | No    | No      | No  | YES              | No              | No                    | No                   | YES        |
|                |                                       | HSUPA             | 2    | No    | No    | YES   | No    | No      | No  | YES              | No              | No                    | No                   | YES        |
|                |                                       | HSUPA             | 4    | No    | No    | YES   | No    | No      | No  | YES              | No              | No                    | No                   | YES        |
|                |                                       | HSUPA             | 5    | No    | No    | YES   | No    | No      | No  | YES              | No              | No                    | No                   | YES        |
|                |                                       | HSPA+             | 2    | No    | No    | No    | YES   | No      | No  | YES              | No              | No                    | No                   | YES        |
|                |                                       | HSPA+             | 4    | No    | No    | No    | YES   | No      | No  | YES              | No              | No                    | No                   | YES        |
|                |                                       | HSPA+             | 5    | No    | No    | No    | YES   | No      | No  | YES              | No              | No                    | No                   | YES        |
|                |                                       | DC-HSDPA          | 2    | No    | No    | No    | No    | YES     | No  | YES              | No              | No                    | No                   | YES        |
|                |                                       | DC-HSDPA          | 4    | No    | No    | No    | No    | YES     | No  | YES              | No              | No                    | No                   | YES        |
|                |                                       | DC-HSDPA          | 5    | No    | No    | No    | No    | YES     | No  | YES              | No              | No                    | No                   | YES        |
|                |                                       | LTE               | 2    | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | YES        |
|                |                                       | LTE               | 4    | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | YES        |
|                |                                       | LTE               | 5    | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | YES        |
|                |                                       | LTE               | 7    | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | YES        |
|                |                                       | LTE               | 12   | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | YES        |
|                |                                       | LTE               | 13   | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | YES        |
|                |                                       | LTE               | 25   | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | YES        |
|                |                                       | LTE               | 26   | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | YES        |
|                |                                       | LTE               | 41   | No    | No    | No    | No    | No      | YES | YES              | No              | No                    | No                   | YES        |
|                | WWAN + 5 GHz Bands WLAN + Bluetooth   | W-CDMA            | 2    | YES   | No    | No    | No    | No      | No  | No               | No              | YES                   | No                   | YES        |
|                |                                       | W-CDMA            | 4    | YES   | No    | No    | No    | No      | No  | No               | No              | YES                   | No                   | YES        |
|                |                                       | W-CDMA            | 5    | YES   | No    | No    | No    | No      | No  | No               | No              | YES                   | No                   | YES        |
|                |                                       | HSDPA             | 2    | No    | YES   | No    | No    | No      | No  | No               | No              | YES                   | No                   | YES        |
|                |                                       | HSDPA             | 4    | No    | YES   | No    | No    | No      | No  | No               | No              | YES                   | No                   | YES        |
|                |                                       | HSDPA             | 5    | No    | YES   | No    | No    | No      | No  | No               | No              | YES                   | No                   | YES        |
|                |                                       | HSUPA             | 2    | No    | No    | YES   | No    | No      | No  | No               | No              | YES                   | No                   | YES        |
|                |                                       | HSUPA             | 4    | No    | No    | YES   | No    | No      | No  | No               | No              | YES                   | No                   | YES        |
|                |                                       | HSUPA             | 5    | No    | No    | YES   | No    | No      | No  | No               | No              | YES                   | No                   | YES        |
|                |                                       | HSPA+             | 2    | No    | No    | No    | YES   | No      | No  | No               | No              | YES                   | No                   | YES        |
|                |                                       | HSPA+             | 4    | No    | No    | No    | YES   | No      | No  | No               | No              | YES                   | No                   | YES        |
|                |                                       | HSPA+             | 5    | No    | No    | No    | YES   | No      | No  | No               | No              | YES                   | No                   | YES        |
|                |                                       | DC-HSDPA          | 2    | No    | No    | No    | No    | YES     | No  | No               | No              | YES                   | No                   | YES        |
|                |                                       | DC-HSDPA          | 4    | No    | No    | No    | No    | YES     | No  | No               | No              | YES                   | No                   | YES        |
|                |                                       | DC-HSDPA          | 5    | No    | No    | No    | No    | YES     | No  | No               | No              | YES                   | No                   | YES        |
|                |                                       | LTE               | 2    | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | YES        |
|                |                                       | LTE               | 4    | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | YES        |
|                |                                       | LTE               | 5    | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | YES        |
|                |                                       | LTE               | 7    | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | YES        |
|                |                                       | LTE               | 12   | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | YES        |
|                |                                       | LTE               | 13   | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | YES        |
|                |                                       | LTE               | 25   | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | YES        |
|                |                                       | LTE               | 26   | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | YES        |
|                |                                       | LTE               | 41   | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | No                   | YES        |

## WWAN + WLAN MIMO (2 Tx)

| Usage Scenario | Modes                                        | Mode of Operation | BAND | WCDMA | HSDPA | HSUPA | HSPA+ | DC-HSPA | LTE | WLAN 2.4GHz Main | WLAN 2.4GHz Aux | WLAN 5 GHz Bands Main | WLAN 5 GHz Bands Aux | BT 2.4 GHz |
|----------------|----------------------------------------------|-------------------|------|-------|-------|-------|-------|---------|-----|------------------|-----------------|-----------------------|----------------------|------------|
| Body SAR       | WWAN + 2.4GHz Bands WLAN MIMO (2 Tx on WLAN) | W-CDMA            | 2    | YES   | No    | No    | No    | No      | No  | YES              | YES             | No                    | No                   | No         |
|                |                                              | W-CDMA            | 4    | YES   | No    | No    | No    | No      | No  | YES              | YES             | No                    | No                   | No         |
|                |                                              | W-CDMA            | 5    | YES   | No    | No    | No    | No      | No  | YES              | YES             | No                    | No                   | No         |
|                |                                              | HSDPA             | 2    | No    | YES   | No    | No    | No      | No  | YES              | YES             | No                    | No                   | No         |
|                |                                              | HSDPA             | 4    | No    | YES   | No    | No    | No      | No  | YES              | YES             | No                    | No                   | No         |
|                |                                              | HSDPA             | 5    | No    | YES   | No    | No    | No      | No  | YES              | YES             | No                    | No                   | No         |
|                |                                              | HSUPA             | 2    | No    | No    | YES   | No    | No      | No  | YES              | YES             | No                    | No                   | No         |
|                |                                              | HSUPA             | 4    | No    | No    | YES   | No    | No      | No  | YES              | YES             | No                    | No                   | No         |
|                |                                              | HSUPA             | 5    | No    | No    | YES   | No    | No      | No  | YES              | YES             | No                    | No                   | No         |
|                |                                              | HSPA+             | 2    | No    | No    | No    | YES   | No      | No  | YES              | YES             | No                    | No                   | No         |
|                |                                              | HSPA+             | 4    | No    | No    | No    | YES   | No      | No  | YES              | YES             | No                    | No                   | No         |
|                |                                              | HSPA+             | 5    | No    | No    | No    | YES   | No      | No  | YES              | YES             | No                    | No                   | No         |
|                |                                              | DC-HSDPA          | 2    | No    | No    | No    | No    | YES     | No  | YES              | YES             | No                    | No                   | No         |
|                |                                              | DC-HSDPA          | 4    | No    | No    | No    | No    | YES     | No  | YES              | YES             | No                    | No                   | No         |
|                |                                              | DC-HSDPA          | 5    | No    | No    | No    | No    | YES     | No  | YES              | YES             | No                    | No                   | No         |
|                |                                              | LTE               | 2    | No    | No    | No    | No    | No      | YES | YES              | YES             | No                    | No                   | No         |
|                |                                              | LTE               | 4    | No    | No    | No    | No    | No      | YES | YES              | YES             | No                    | No                   | No         |
|                |                                              | LTE               | 5    | No    | No    | No    | No    | No      | YES | YES              | YES             | No                    | No                   | No         |
|                |                                              | LTE               | 7    | No    | No    | No    | No    | No      | YES | YES              | YES             | No                    | No                   | No         |
|                |                                              | LTE               | 12   | No    | No    | No    | No    | No      | YES | YES              | YES             | No                    | No                   | No         |
|                |                                              | LTE               | 13   | No    | No    | No    | No    | No      | YES | YES              | YES             | No                    | No                   | No         |
|                |                                              | LTE               | 25   | No    | No    | No    | No    | No      | YES | YES              | YES             | No                    | No                   | No         |
|                |                                              | LTE               | 26   | No    | No    | No    | No    | No      | YES | YES              | YES             | No                    | No                   | No         |
|                |                                              | LTE               | 41   | No    | No    | No    | No    | No      | YES | YES              | YES             | No                    | No                   | No         |
|                | WWAN + 5 GHz Bands WLAN MIMO (2 Tx on WLAN)  | W-CDMA            | 2    | YES   | No    | No    | No    | No      | No  | No               | No              | YES                   | YES                  | No         |
|                |                                              | W-CDMA            | 4    | YES   | No    | No    | No    | No      | No  | No               | No              | YES                   | YES                  | No         |
|                |                                              | W-CDMA            | 5    | YES   | No    | No    | No    | No      | No  | No               | No              | YES                   | YES                  | No         |
|                |                                              | HSDPA             | 2    | No    | YES   | No    | No    | No      | No  | No               | No              | YES                   | YES                  | No         |
|                |                                              | HSDPA             | 4    | No    | YES   | No    | No    | No      | No  | No               | No              | YES                   | YES                  | No         |
|                |                                              | HSDPA             | 5    | No    | YES   | No    | No    | No      | No  | No               | No              | YES                   | YES                  | No         |
|                |                                              | HSUPA             | 2    | No    | No    | YES   | No    | No      | No  | No               | No              | YES                   | YES                  | No         |
|                |                                              | HSUPA             | 4    | No    | No    | YES   | No    | No      | No  | No               | No              | YES                   | YES                  | No         |
|                |                                              | HSUPA             | 5    | No    | No    | YES   | No    | No      | No  | No               | No              | YES                   | YES                  | No         |
|                |                                              | HSPA+             | 2    | No    | No    | No    | YES   | No      | No  | No               | No              | YES                   | YES                  | No         |
|                |                                              | HSPA+             | 4    | No    | No    | No    | YES   | No      | No  | No               | No              | YES                   | YES                  | No         |
|                |                                              | HSPA+             | 5    | No    | No    | No    | YES   | No      | No  | No               | No              | YES                   | YES                  | No         |
|                |                                              | DC-HSDPA          | 2    | No    | No    | No    | No    | YES     | No  | No               | No              | YES                   | YES                  | No         |
|                |                                              | DC-HSDPA          | 4    | No    | No    | No    | No    | YES     | No  | No               | No              | YES                   | YES                  | No         |
|                |                                              | DC-HSDPA          | 5    | No    | No    | No    | No    | YES     | No  | No               | No              | YES                   | YES                  | No         |
|                |                                              | LTE               | 2    | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | YES                  | No         |
|                |                                              | LTE               | 4    | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | YES                  | No         |
|                |                                              | LTE               | 5    | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | YES                  | No         |
|                |                                              | LTE               | 7    | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | YES                  | No         |
|                |                                              | LTE               | 12   | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | YES                  | No         |
|                |                                              | LTE               | 13   | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | YES                  | No         |
|                |                                              | LTE               | 25   | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | YES                  | No         |
|                |                                              | LTE               | 26   | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | YES                  | No         |
|                |                                              | LTE               | 41   | No    | No    | No    | No    | No      | YES | No               | No              | YES                   | YES                  | No         |

## 8. Exposure Conditions

Refer to Section 17 “Antenna Dimensions and Separation Distances” for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.

### 8.1. Test Configurations for the Main Antenna, SISO and MIMO Modes

#### Tablet Mode

| Test Configurations | Antenna-to-edge/surface | SAR Required | Note                                                                                                                                                                                |
|---------------------|-------------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rear                | 19.3 mm                 | Yes          | Refer to section 12 for SAR exclusion justification.                                                                                                                                |
| Front               | -                       | No           | SAR is not required as this is not a typical use scenario.                                                                                                                          |
| Edge 1              | 162.5 mm                | Yes          | Refer to section 12 for SAR exclusion justification. Though SAR was not required for standalone, the test was performed for simultaneous transmitting evaluation with WWAN antenna. |
| Edge 2              | > 200 mm                | No           | Since this position is more than 20 cm away, SAR test was excluded.                                                                                                                 |
| Edge 3              | 45.5 mm                 | Yes          | Refer to section 12 for SAR exclusion justification.                                                                                                                                |
| Edge 4              | 3.3 mm                  | Yes          | Refer to section 12 for SAR exclusion justification.                                                                                                                                |
| Edge 4 tilt         | 2.6 mm                  | Yes          | Refer to 8.4. Additional Test Scenarios. Refer to section 12 for SAR exclusion justification.                                                                                       |

#### Laptop Mode

| Test Configurations      | Antenna-to-edge/surface | SAR Required | Note                                                                                                                                                                                     |
|--------------------------|-------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bottom side(Laptop mode) | 96.6 mm                 | No           | SAR of WLAN Main Antenna does not require testing in this position when operating in Laptop Mode as the same test position for Tablet Mode(Edge 3 equivalence) is far more conservative. |

#### Convertible Mode

| Test Configurations       | Antenna-to-edge/surface | SAR Required | Note                                                                                                                                   |
|---------------------------|-------------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Rear (Convertible Mode)   | 42.3 mm                 | No           | SAR of WLAN Main Antenna does not require testing in this position as it is accounted for by the Rear test position for Tablet Mode.   |
| Front (Convertible Mode)  | -                       | No           | SAR is not required as this is not a typical use scenario.                                                                             |
| Edge 1 (Convertible Mode) | 162.5 mm                | No           | SAR of WLAN Main Antenna does not require testing in this position as it is accounted for by the Edge 1 test position for Tablet Mode. |
| Edge 2 (Convertible Mode) | > 200 mm                | No           | SAR of WLAN Main Antenna does not require testing in this position as it is accounted for by the Edge 2 test position for Tablet Mode. |
| Edge 3 (Convertible Mode) | 72 mm                   | No           | SAR of WLAN Main Antenna does not require testing in this position as it is accounted for by the Edge 3 test position for Tablet Mode. |
| Edge 4 (Convertible Mode) | 3.3 mm                  | No           | SAR of WLAN Main Antenna does not require testing in this position as it is accounted for by the Edge 4 test position for Tablet Mode. |

## 8.2. Test Configurations for the Auxiliary Antenna, SISO and MIMO Modes

### Tablet Mode

| Test Configurations | Antenna-to-edge/surface | SAR Required | Note                                                                                                                                                                                |
|---------------------|-------------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rear                | 19.3 mm                 | Yes          | Refer to section 12 for SAR exclusion justification.                                                                                                                                |
| Front               | -                       | No           | SAR is not required as this is not a typical use scenario.                                                                                                                          |
| Edge 1              | 169.8 mm                | Yes          | Refer to section 12 for SAR exclusion justification. Though SAR was not required for standalone, the test was performed for simultaneous transmitting evaluation with WWAN antenna. |
| Edge 2              | 5.4 mm                  | Yes          | Refer to section 12 for SAR exclusion justification.                                                                                                                                |
| Edge 2 tilt         | 4.5 mm                  | Yes          | Refer to 8.4. Additional Test Scenarios. Refer to section 12 for SAR exclusion justification.                                                                                       |
| Edge 3              | 41.8 mm                 | Yes          | Refer to section 12 for SAR exclusion justification.                                                                                                                                |
| Edge 4              | > 200 mm                | No           | Since this position is more than 20 cm away, SAR test was excluded.                                                                                                                 |

### Laptop Mode

| Test Configurations      | Antenna-to-edge/surface | SAR Required | Note                                                                                                                                                                                    |
|--------------------------|-------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bottom side(Laptop mode) | 92.9 mm                 | No           | SAR of WLAN Aux Antenna does not require testing in this position when operating in Laptop Mode as the same test position for Tablet Mode(Edge 3 equivalence) is far more conservative. |

### Convertible Mode

| Test Configurations       | Antenna-to-edge/surface | SAR Required | Note                                                                                                                                  |
|---------------------------|-------------------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Rear (Convertible Mode)   | 42.3 mm                 | No           | SAR of WLAN Aux Antenna does not require testing in this position as it is accounted for by the Rear test position for Tablet Mode.   |
| Front (Convertible Mode)  | -                       | No           | SAR is not required as this is not a typical use scenario.                                                                            |
| Edge 1 (Convertible Mode) | 169.8 mm                | No           | SAR of WLAN Aux Antenna does not require testing in this position as it is accounted for by the Edge 1 test position for Tablet Mode. |
| Edge 2 (Convertible Mode) | 5.4 mm                  | No           | SAR of WLAN Aux Antenna does not require testing in this position as it is accounted for by the Edge 2 test position for Tablet Mode. |
| Edge 3 (Convertible Mode) | 68.3 mm                 | No           | SAR of WLAN Aux Antenna does not require testing in this position as it is accounted for by the Edge 3 test position for Tablet Mode. |
| Edge 4 (Convertible Mode) | > 200 mm                | No           | SAR of WLAN Aux Antenna does not require testing in this position as it is accounted for by the Edge 4 test position for Tablet Mode. |

### 8.3. Test Configurations for the Auxiliary Antenna, Bluetooth

#### Tablet Mode

| Test Configurations | Antenna-to-edge/surface | SAR Required | Note                                                                                                                                                                                                                         |
|---------------------|-------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rear                | 19.3 mm                 | Yes          | Refer to section 12 for SAR exclusion justification. Though SAR was not required for standalone, the test was performed for simultaneous transmitting evaluation with WWAN antenna.                                          |
| Front               | -                       | No           | SAR is not required as this is not a typical use scenario.                                                                                                                                                                   |
| Edge 1              | 169.8 mm                | Yes          | Refer to section 12 for SAR exclusion justification. Though SAR was not required for standalone, the test was performed for simultaneous transmitting evaluation with WWAN antenna.                                          |
| Edge 2              | 5.4 mm                  | Yes          | Refer to section 12 for SAR exclusion justification. Though SAR was not required for standalone, the test was performed for simultaneous transmitting evaluation with WWAN antenna.                                          |
| Edge 2 tilt         | 4.5 mm                  | Yes          | Refer to 8.4. Additional Test Scenarios. Refer to section 12 for SAR exclusion justification. Though SAR was not required for standalone, the test was performed for simultaneous transmitting evaluation with WWAN antenna. |
| Edge 3              | 41.8 mm                 | Yes          | Refer to section 12 for SAR exclusion justification. Though SAR was not required for standalone, the test was performed for simultaneous transmitting evaluation with WWAN antenna.                                          |
| Edge 4              | > 200 mm                | No           | Since this position is more than 20 cm away, SAR test was excluded.                                                                                                                                                          |

#### Laptop Mode

| Test Configurations      | Antenna-to-edge/surface | SAR Required | Note                                                                                                                                                                                     |
|--------------------------|-------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bottom side(Laptop mode) | 92.9 mm                 | No           | SAR of Bluetooth Antenna does not require testing in this position when operating in Laptop Mode as the same test position for Tablet Mode(Edge 3 equivalence) is far more conservative. |

## Convertible Mode

| Test Configurations       | Antenna-to-edge/surface | SAR Required | Note                                                                                                                                   |
|---------------------------|-------------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Rear (Convertible Mode)   | 42.3 mm                 | No           | SAR of Bluetooth Antenna does not require testing in this position as it is accounted for by the Rear test position for Tablet Mode.   |
| Front (Convertible Mode)  | -                       | No           | SAR is not required as this is not a typical use scenario.                                                                             |
| Edge 1 (Convertible Mode) | 169.8 mm                | No           | SAR of Bluetooth Antenna does not require testing in this position as it is accounted for by the Edge 1 test position for Tablet Mode. |
| Edge 2 (Convertible Mode) | 5.4 mm                  | No           | SAR of Bluetooth Antenna does not require testing in this position as it is accounted for by the Edge 2 test position for Tablet Mode. |
| Edge 3 (Convertible Mode) | 68.3 mm                 | No           | SAR of Bluetooth Antenna does not require testing in this position as it is accounted for by the Edge 3 test position for Tablet Mode. |
| Edge 4 (Convertible Mode) | > 200 mm                | No           | SAR of Bluetooth Antenna does not require testing in this position as it is accounted for by the Edge 4 test position for Tablet Mode. |

### LEGEND:

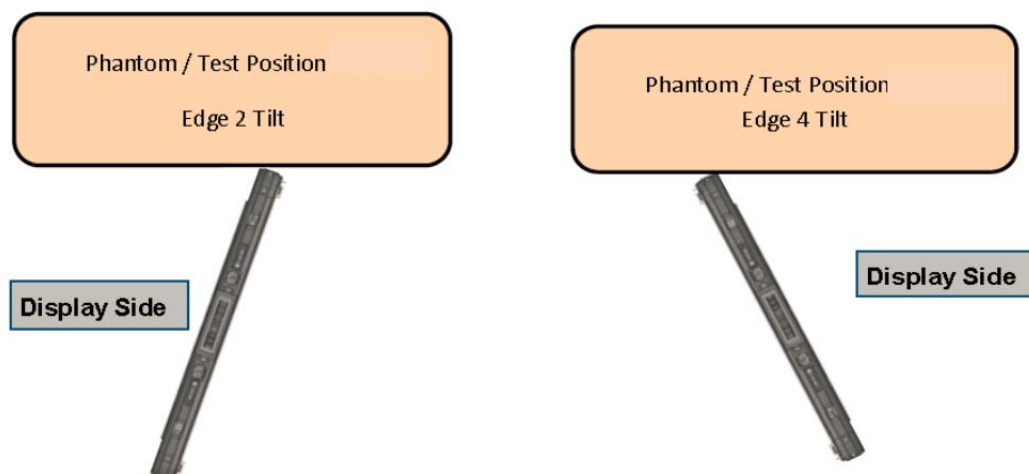
- Edge 1 = Top Edge(Tablet mode)
- Edge 2 = Left Edge(Tablet mode)
- Edge 2 tilt = Left Edge tilt (Tablet mode)
- Edge 3 = Bottom Edge(Tablet mode)
- Edge 4 = Right Edge(Tablet mode)
- Edge 4 tilt = Right Edge tilt (Tablet mode)
- Rear = Rear of display (Tablet mode)

## 8.4. Additional Test Scenarios

Due to the user separation distance of below setup case is shorter than Edge2 and Edge4. (Refer to Section17)

Therefore below additional 2 positions were tested.

This setup is based on the KDB inquiry.



## 9. Summary of Required Test Modes

The initial test configuration for 2.4 GHz and 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures. When multiple configurations in a frequency band have the same specified maximum output power, the initial test configuration is determined according to the following steps applied sequentially.

- 1) The largest channel bandwidth configuration is selected among the multiple configurations with the same specified maximum output power.
- 2) If multiple configurations have the same specified maximum output power and largest channel bandwidth, the lowest order modulation among the largest channel bandwidth configurations is selected.
- 3) If multiple configurations have the same specified maximum output power, largest channel bandwidth and lowest order modulation, the lowest data rate configuration among these configurations is selected.
- 4) When multiple transmission modes (802.11a/g/n/ac) have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n.

## 9.1. WLAN 2.4GHz (DTS Band)

### SISO

| Band (GHz) | Mode           | Data Rate | Ch # | Freq. (MHz) | Measured average Power (dBm) |              | Tune-up upper Power (dBm) |            | Initial SAR Test (Yes/No) | Note(s) |
|------------|----------------|-----------|------|-------------|------------------------------|--------------|---------------------------|------------|---------------------------|---------|
|            |                |           |      |             | Main Ant Tx                  | Sub Ant Tx   | Main Ant Tx               | Sub Ant Tx |                           |         |
| 2.4        | 802.11b        | 1 Mbps    | 1    | 2412        | 14.92                        | 14.85        | 15.0                      | 15.0       | Yes                       | 3       |
|            |                |           | 6    | 2437        | 14.74                        | 14.75        |                           |            |                           |         |
|            |                |           | 11   | 2462        | 14.81                        | 14.68        |                           |            |                           |         |
|            |                |           | 12   | 2467        | 14.73                        | 14.69        |                           |            |                           |         |
|            |                |           | 13   | 2472        | 11.98                        | 11.76        |                           |            |                           |         |
|            | 802.11g        | 6 Mbps    | 1    | 2412        | Not Required                 | Not Required | 15.0                      | 15.0       | No                        | 1       |
|            |                |           | 6    | 2437        | Not Required                 | Not Required |                           |            |                           |         |
|            |                |           | 11   | 2462        | Not Required                 | Not Required |                           |            |                           |         |
|            |                |           | 12   | 2467        | Not Required                 | Not Required |                           |            |                           |         |
|            |                |           | 13   | 2472        | Not Required                 | Not Required |                           |            |                           |         |
|            | 802.11n (HT20) | 6.5 Mbps  | 1    | 2412        | Not Required                 | Not Required | 15.0                      | 15.0       | No                        | 1       |
|            |                |           | 6    | 2437        | Not Required                 | Not Required |                           |            |                           |         |
|            |                |           | 11   | 2462        | Not Required                 | Not Required |                           |            |                           |         |
|            |                |           | 12   | 2467        | Not Required                 | Not Required |                           |            |                           |         |
|            |                |           | 13   | 2472        | Not Required                 | Not Required |                           |            |                           |         |
|            | 802.11n (HT40) | 13.5 Mbps | 3    | 2422        | 14.95                        | 14.82        | 15.0                      | 15.0       | No                        | 1       |
|            |                |           | 6    | 2437        | 14.51                        | 14.83        |                           |            |                           |         |
|            |                |           | 9    | 2452        | 14.53                        | 14.72        |                           |            |                           |         |
|            |                |           | 10   | 2457        | 12.09                        | 12.28        |                           |            |                           |         |
|            |                |           | 11   | 2462        | 0.82                         | 0.56         |                           |            |                           |         |

### MIMO

| Band (GHz) | Mode           | Data Rate | Ch # | Freq. (MHz) | Measured average Power (dBm) | Tune-up upper Power (dBm)    | Initial SAR Test (Yes/No) | Note(s) |
|------------|----------------|-----------|------|-------------|------------------------------|------------------------------|---------------------------|---------|
|            |                |           |      |             | Main&Sub Ant Simultaneous Tx | Main&Sub Ant Simultaneous Tx |                           |         |
| 2.4        | 802.11n (HT20) | 6.5 Mbps  | 1    | 2412        | Not Required                 | 13.5                         | No                        | 2       |
|            |                |           | 6    | 2437        | Not Required                 | 15.0                         |                           |         |
|            |                |           | 11   | 2462        | Not Required                 |                              |                           |         |
|            |                |           | 12   | 2467        | Not Required                 | 11.0                         |                           |         |
|            |                |           | 13   | 2472        | Not Required                 | -0.5                         |                           |         |
|            | 802.11n (HT40) | 13.5 Mbps | 3    | 2422        | Not Required                 | 13.5                         | No                        | 2       |
|            |                |           | 6    | 2437        | Not Required                 | 15.0                         |                           |         |
|            |                |           | 9    | 2452        | Not Required                 | 12.5                         |                           |         |
|            |                |           | 10   | 2457        | Not Required                 | 11.0                         |                           |         |
|            |                |           | 11   | 2462        | Not Required                 | -2.5                         |                           |         |

### Note(s):

- According to KDB248227D01, SAR is not required for 802.11g/n HT20/HT40 channels when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is  $\leq 1.2$  W/kg.
- The standalone (SISO) SAR results were considered acceptable for the MIMO simultaneous transmission analysis as the MIMO power does not exceed the SISO power. The antenna separation distance will not be less than 50mm.
- SAR test channel was chosen according to KDB248227D01. (shaded blue frame)

## 9.2. WLAN 5GHz (U-NII-1 and U-NII-2A Bands)

### SISO

| Band (GHz)     | Mode             | Data Rate | Ch # | Freq. (MHz) | Measured average Power (dBm) |              | Tune-up upper Power (dBm) |            | Initial SAR Test (Yes/No) | Note(s) |
|----------------|------------------|-----------|------|-------------|------------------------------|--------------|---------------------------|------------|---------------------------|---------|
|                |                  |           |      |             | Main Ant Tx                  | Sub Ant Tx   | Main Ant Tx               | Sub Ant Tx |                           |         |
| 5.2 (U-NII-1)  | 802.11a          | 6 Mbps    | 36   | 5180        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 2       |
|                |                  |           | 40   | 5200        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 44   | 5220        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 48   | 5240        | Not Required                 | Not Required |                           |            |                           |         |
|                | 802.11n (HT20)   | 6.5 Mbps  | 36   | 5180        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 2       |
|                |                  |           | 40   | 5200        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 44   | 5220        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 48   | 5240        | Not Required                 | Not Required |                           |            |                           |         |
|                | 802.11n (HT40)   | 13.5 Mbps | 38   | 5190        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 2       |
|                |                  |           | 46   | 5230        | Not Required                 | Not Required |                           |            |                           |         |
|                | 802.11ac (VHT20) | 6.5 Mbps  | 36   | 5180        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 2       |
|                |                  |           | 40   | 5200        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 44   | 5220        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 48   | 5240        | Not Required                 | Not Required |                           |            |                           |         |
|                | 802.11ac (VHT40) | 13.5 Mbps | 38   | 5190        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 2       |
|                |                  |           | 46   | 5230        | Not Required                 | Not Required |                           |            |                           |         |
|                | 802.11ac (VHT80) | 29.3 Mbps | 42   | 5210        | 13.08                        | 13.01        | 13.5                      | 13.5       | No                        | 2       |
| 5.3 (U-NII-2A) | 802.11a          | 6 Mbps    | 52   | 5260        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 1       |
|                |                  |           | 56   | 5280        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 60   | 5300        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 64   | 5320        | Not Required                 | Not Required |                           |            |                           |         |
|                | 802.11n (HT20)   | 6.5 Mbps  | 52   | 5260        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 1       |
|                |                  |           | 56   | 5280        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 60   | 5300        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 64   | 5320        | Not Required                 | Not Required |                           |            |                           |         |
|                | 802.11n (HT40)   | 13.5 Mbps | 54   | 5270        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 1       |
|                |                  |           | 62   | 5310        | Not Required                 | Not Required |                           |            |                           |         |
|                | 802.11ac (VHT20) | 6.5 Mbps  | 52   | 5260        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 1       |
|                |                  |           | 56   | 5280        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 60   | 5300        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 64   | 5320        | Not Required                 | Not Required |                           |            |                           |         |
|                | 802.11ac (VHT40) | 13.5 Mbps | 54   | 5270        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 1       |
|                |                  |           | 62   | 5310        | Not Required                 | Not Required |                           |            |                           |         |
|                | 802.11ac (VHT80) | 29.3 Mbps | 58   | 5290        | 13.47                        | 13.29        | 13.5                      | 13.5       | Yes                       | 1,4     |

## MIMO (continued)

| Band (GHz)     | Mode             | Data Rate | Ch # | Freq. (MHz) | Measured average Power (dBm) | Tune-up upper Power (dBm)    | Initial SAR Test (Yes/No) | Note(s) |
|----------------|------------------|-----------|------|-------------|------------------------------|------------------------------|---------------------------|---------|
|                |                  |           |      |             | Main&Sub Ant Simultaneous Tx | Main&Sub Ant Simultaneous Tx |                           |         |
| 5.2 (U-NII-1)  | 802.11n (HT20)   | 6.5 Mbps  | 36   | 5180        | Not Required                 | 13.5                         | No                        | 3       |
|                |                  |           | 40   | 5200        | Not Required                 |                              |                           |         |
|                |                  |           | 44   | 5220        | Not Required                 |                              |                           |         |
|                |                  |           | 48   | 5240        | Not Required                 |                              |                           |         |
|                | 802.11n (HT40)   | 13.5 Mbps | 38   | 5190        | Not Required                 | 13.5                         | No                        | 3       |
|                |                  |           | 46   | 5230        | Not Required                 |                              |                           |         |
|                | 802.11ac (VHT20) | 6.5 Mbps  | 36   | 5180        | Not Required                 | 13.5                         | No                        | 3       |
|                |                  |           | 40   | 5200        | Not Required                 |                              |                           |         |
|                |                  |           | 44   | 5220        | Not Required                 |                              |                           |         |
|                |                  |           | 48   | 5240        | Not Required                 |                              |                           |         |
|                | 802.11ac (VHT40) | 13.5 Mbps | 38   | 5190        | Not Required                 | 13.5                         | No                        | 3       |
|                |                  |           | 46   | 5230        | Not Required                 |                              |                           |         |
|                | 802.11ac (VHT80) | 29.3 Mbps | 42   | 5210        | Not Required                 | 13.5                         | No                        | 3       |
| 5.3 (U-NII-2A) | 802.11n (HT20)   | 6.5 Mbps  | 52   | 5260        | Not Required                 | 13.5                         | No                        | 3       |
|                |                  |           | 56   | 5280        | Not Required                 |                              |                           |         |
|                |                  |           | 60   | 5300        | Not Required                 |                              |                           |         |
|                |                  |           | 64   | 5320        | Not Required                 |                              |                           |         |
|                | 802.11n (HT40)   | 13.5 Mbps | 54   | 5270        | Not Required                 | 13.5                         | No                        | 3       |
|                |                  |           | 62   | 5310        | Not Required                 |                              |                           |         |
|                | 802.11ac (VHT20) | 6.5 Mbps  | 52   | 5260        | Not Required                 | 13.5                         | No                        | 3       |
|                |                  |           | 56   | 5280        | Not Required                 |                              |                           |         |
|                |                  |           | 60   | 5300        | Not Required                 |                              |                           |         |
|                |                  |           | 64   | 5320        | Not Required                 |                              |                           |         |
|                | 802.11ac (VHT40) | 13.5 Mbps | 54   | 5270        | Not Required                 | 13.5                         | No                        | 3       |
|                |                  |           | 62   | 5310        | Not Required                 |                              |                           |         |
|                | 802.11ac (VHT80) | 29.3 Mbps | 58   | 5290        | Not Required                 | 13.5                         | No                        | 3       |

### Note(s):

- When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/g/n/ac modes, the channel with the largest bandwidth and lowest data rate is selected (i.e. 802.11ac VHT80).
- 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
  - o  $\leq 1.2$  W/kg, SAR is not required for UNII band I
  - o  $> 1.2$  W/kg, both bands should be tested independently for SAR.
- The standalone (SISO) SAR results were considered acceptable for the MIMO simultaneous transmission analysis as the MIMO power does not exceed the SISO power. The antenna separation distance will not be less than 50mm.
- SAR test channel was chosen according to KDB248227D01. (shaded blue frame)

### 9.3. WLAN 5GHz (U-NII-2C Band)

#### SISO

| Band (GHz)     | Mode             | Data Rate | Ch # | Freq. (MHz) | Measured average Power (dBm) |              | Tune-up upper Power (dBm) |            | Initial SAR Test (Yes/No) | Note(s) |
|----------------|------------------|-----------|------|-------------|------------------------------|--------------|---------------------------|------------|---------------------------|---------|
|                |                  |           |      |             | Main Ant Tx                  | Sub Ant Tx   | Main Ant Tx               | Sub Ant Tx |                           |         |
| 5.5 (U-NII-2C) | 802.11a          | 6 Mbps    | 100  | 5500        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 1       |
|                |                  |           | 116  | 5580        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 140  | 5700        | Not Required                 | Not Required |                           |            |                           |         |
|                | 802.11n (HT20)   | 6.5 Mbps  | 100  | 5500        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 1       |
|                |                  |           | 116  | 5580        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 140  | 5700        | Not Required                 | Not Required |                           |            |                           |         |
|                | 802.11n (HT40)   | 13.5 Mbps | 102  | 5510        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 1       |
|                |                  |           | 118  | 5590        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 134  | 5670        | Not Required                 | Not Required |                           |            |                           |         |
|                | 802.11ac (VHT20) | 6.5 Mbps  | 100  | 5500        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 1       |
|                |                  |           | 116  | 5580        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 140  | 5700        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 144  | 5720        | Not Required                 | Not Required |                           |            |                           |         |
|                | 802.11ac (VHT40) | 13.5 Mbps | 102  | 5510        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 1       |
|                |                  |           | 118  | 5590        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 134  | 5670        | Not Required                 | Not Required |                           |            |                           |         |
|                |                  |           | 142  | 5710        | Not Required                 | Not Required |                           |            |                           |         |
|                | 802.11ac (VHT80) | 29.3 Mbps | 106  | 5530        | 13.19                        | 13.45        | 13.5                      | 13.5       | Yes                       | 1,3     |
|                |                  |           | 122  | 5610        | 13.03                        | 13.32        |                           |            |                           |         |
|                |                  |           | 138  | 5690        | 13.08                        | 13.34        |                           |            |                           |         |

#### MIMO (continued)

| Band (GHz)     | Mode             | Data Rate | Ch # | Freq. (MHz) | Measured average Power (dBm) | Tune-up upper Power (dBm)    | Initial SAR Test (Yes/No) | Note(s) |
|----------------|------------------|-----------|------|-------------|------------------------------|------------------------------|---------------------------|---------|
|                |                  |           |      |             | Main&Sub Ant Simultaneous Tx | Main&Sub Ant Simultaneous Tx |                           |         |
| 5.5 (U-NII-2C) | 802.11n (HT20)   | 6.5 Mbps  | 100  | 5500        | Not Required                 | 13.5                         | No                        | 2       |
|                |                  |           | 116  | 5580        | Not Required                 |                              |                           |         |
|                |                  |           | 140  | 5700        | Not Required                 |                              |                           |         |
|                | 802.11n (HT40)   | 13.5 Mbps | 102  | 5510        | Not Required                 | 13.5                         | No                        | 2       |
|                |                  |           | 118  | 5590        | Not Required                 |                              |                           |         |
|                |                  |           | 134  | 5670        | Not Required                 |                              |                           |         |
|                | 802.11ac (VHT20) | 6.5 Mbps  | 100  | 5500        | Not Required                 | 13.5                         | No                        | 2       |
|                |                  |           | 116  | 5580        | Not Required                 |                              |                           |         |
|                |                  |           | 140  | 5700        | Not Required                 |                              |                           |         |
|                |                  |           | 144  | 5720        | Not Required                 |                              |                           |         |
|                | 802.11ac (VHT40) | 13.5 Mbps | 102  | 5510        | Not Required                 | 13.5                         | No                        | 2       |
|                |                  |           | 118  | 5590        | Not Required                 |                              |                           |         |
|                |                  |           | 134  | 5670        | Not Required                 |                              |                           |         |
|                |                  |           | 142  | 5710        | Not Required                 |                              |                           |         |
|                | 802.11ac (VHT80) | 29.3 Mbps | 106  | 5530        | Not Required                 | 13.5                         | No                        | 2       |
|                |                  |           | 122  | 5610        | Not Required                 |                              |                           |         |
|                |                  |           | 138  | 5690        | Not Required                 |                              |                           |         |

#### **Note(s):**

- When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/g/n/ac modes, the channel with the largest bandwidth and lowest data rate is selected (i.e. 802.11ac VHT80).
- The standalone (SISO) SAR results were considered acceptable for the MIMO simultaneous transmission analysis as the MIMO power does not exceed the SISO power. The antenna separation distance will not be less than 50mm.
- SAR test channel was chosen according to KDB248227D01. (shaded blue frame)

## 9.4. WLAN 5GHz (U-NII-3 Band)

### SISO

| Band (GHz)    | Mode             | Data Rate | Ch # | Freq. (MHz) | Measured average Power (dBm) |              | Tune-up upper Power (dBm) |            | Initial SAR Test (Yes/No) | Note(s) |
|---------------|------------------|-----------|------|-------------|------------------------------|--------------|---------------------------|------------|---------------------------|---------|
|               |                  |           |      |             | Main Ant Tx                  | Sub Ant Tx   | Main Ant Tx               | Sub Ant Tx |                           |         |
| 5.8 (U-NII-3) | 802.11a          | 6 Mbps    | 149  | 5745        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 1       |
|               |                  |           | 157  | 5785        | Not Required                 | Not Required |                           |            |                           |         |
|               |                  |           | 165  | 5825        | Not Required                 | Not Required |                           |            |                           |         |
|               | 802.11n (HT20)   | 6.5 Mbps  | 149  | 5745        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 1       |
|               |                  |           | 157  | 5785        | Not Required                 | Not Required |                           |            |                           |         |
|               |                  |           | 165  | 5825        | Not Required                 | Not Required |                           |            |                           |         |
|               | 802.11n (HT40)   | 13.5 Mbps | 151  | 5755        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 1       |
|               |                  |           | 159  | 5795        | Not Required                 | Not Required |                           |            |                           |         |
|               | 802.11ac (VHT20) | 6.5 Mbps  | 149  | 5745        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 1       |
|               |                  |           | 157  | 5785        | Not Required                 | Not Required |                           |            |                           |         |
|               |                  |           | 165  | 5825        | Not Required                 | Not Required |                           |            |                           |         |
|               | 802.11ac (VHT40) | 13.5 Mbps | 151  | 5755        | Not Required                 | Not Required | 13.5                      | 13.5       | No                        | 1       |
|               |                  |           | 159  | 5795        | Not Required                 | Not Required |                           |            |                           |         |
|               | 802.11ac (VHT80) | 29.3 Mbps | 155  | 5775        | 13.27                        | 13.36        | 13.5                      | 13.5       | Yes                       | 1,3     |

### MIMO

| Band (GHz)    | Mode             | Data Rate | Ch # | Freq. (MHz) | Measured average Power (dBm) | Tune-up upper Power (dBm)    | Initial SAR Test (Yes/No) | Note(s) |
|---------------|------------------|-----------|------|-------------|------------------------------|------------------------------|---------------------------|---------|
|               |                  |           |      |             | Main&Sub Ant Simultaneous Tx | Main&Sub Ant Simultaneous Tx |                           |         |
| 5.8 (U-NII-3) | 802.11n (HT20)   | 6.5 Mbps  | 149  | 5745        | Not Required                 | 13.5                         | No                        | 2       |
|               |                  |           | 157  | 5785        | Not Required                 | 13.5                         |                           |         |
|               |                  |           | 165  | 5825        | Not Required                 | 13.5                         |                           |         |
|               | 802.11n (HT40)   | 13.5 Mbps | 151  | 5755        | Not Required                 | 13.5                         | No                        | 2       |
|               |                  |           | 159  | 5795        | Not Required                 | 13.5                         |                           |         |
|               | 802.11ac (VHT20) | 6.5 Mbps  | 149  | 5745        | Not Required                 | 13.5                         | No                        | 2       |
|               |                  |           | 157  | 5785        | Not Required                 | 13.5                         |                           |         |
|               |                  |           | 165  | 5825        | Not Required                 | 13.5                         |                           |         |
|               | 802.11ac (VHT40) | 13.5 Mbps | 151  | 5755        | Not Required                 | 13.5                         | No                        | 2       |
|               |                  |           | 159  | 5795        | Not Required                 | 13.5                         |                           |         |
|               | 802.11ac (VHT80) | 29.3 Mbps | 155  | 5775        | Not Required                 | 13.5                         | No                        | 2       |

### Note(s):

- When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/g/n/ac modes, the channel with the largest bandwidth and lowest data rate is selected (i.e. 802.11ac VHT80).
- The standalone (SISO) SAR results were considered acceptable for the MIMO simultaneous transmission analysis as the MIMO power does not exceed the SISO power. The antenna separation distance will not be less than 50mm.
- SAR test channel was chosen according to KDB248227D01. (shaded blue frame)

## 9.5. Bluetooth

| Band (GHz) | Mode | Data Rate | Ch # | Freq. (MHz) | Measured average Power (dBm) |            | Tune-up upper Power (dBm) |            | SAR Test (Yes/No) | Note(s) |
|------------|------|-----------|------|-------------|------------------------------|------------|---------------------------|------------|-------------------|---------|
|            |      |           |      |             | Main Ant Tx                  | Sub Ant Tx | Main Ant Tx               | Sub Ant Tx |                   |         |
| 2.4        | BDR  | DH5       | 0    | 2402        | -                            | 7.83       | -                         | 9.00       | Yes               | 1       |
|            |      |           | 39   | 2441        | -                            | 8.05       |                           |            |                   |         |
|            |      |           | 78   | 2480        | -                            | 7.97       |                           |            |                   |         |
|            | EDR  | 2DH5      | 0    | 2402        | -                            | 4.04       | -                         | 6.00       | No                | 1       |
|            |      |           | 39   | 2441        | -                            | 4.29       |                           |            |                   |         |
|            |      |           | 78   | 2480        | -                            | 4.31       |                           |            |                   |         |
|            | EDR  | 3DH5      | 0    | 2402        | -                            | 4.04       | -                         | 5.10       | No                | 1       |
|            |      |           | 39   | 2441        | -                            | 4.28       |                           |            |                   |         |
|            |      |           | 78   | 2480        | -                            | 4.12       |                           |            |                   |         |
|            | LE   | -         | 0    | 2402        | -                            | 3.00       | -                         | 3.70       | No                | 1       |
|            |      |           | 40   | 2442        | -                            | 3.11       |                           |            |                   |         |
|            |      |           | 78   | 2480        | -                            | 3.13       |                           |            |                   |         |

### Note(s):

- SAR measurement is not required for EDR and LE when the specified tune-up tolerances for EDR and LE are lower than BDR.
- SAR test channel was chosen according to KDB447498D01. (shaded blue frame)

## 10. Dielectric Property Measurements

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

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

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

### Tissue Dielectric Parameters

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

| Target Frequency (MHz) | Head         |                | Body         |                |
|------------------------|--------------|----------------|--------------|----------------|
|                        | $\epsilon_r$ | $\sigma$ (S/m) | $\epsilon_r$ | $\sigma$ (S/m) |
| 150                    | 52.3         | 0.76           | 61.9         | 0.80           |
| 300                    | 45.3         | 0.87           | 58.2         | 0.92           |
| 450                    | 43.5         | 0.87           | 56.7         | 0.94           |
| 835                    | 41.5         | 0.90           | 55.2         | 0.97           |
| 900                    | 41.5         | 0.97           | 55.0         | 1.05           |
| 915                    | 41.5         | 0.98           | 55.0         | 1.06           |
| 1450                   | 40.5         | 1.20           | 54.0         | 1.30           |
| 1610                   | 40.3         | 1.29           | 53.8         | 1.40           |
| 1800 – 2000            | 40.0         | 1.40           | 53.3         | 1.52           |
| 2450                   | 39.2         | 1.80           | 52.7         | 1.95           |
| 3000                   | 38.5         | 2.40           | 52.0         | 2.73           |

|      |      |      |      |      |
|------|------|------|------|------|
| 5000 | 36.2 | 4.45 | 49.3 | 5.07 |
| 5100 | 36.1 | 4.55 | 49.1 | 5.18 |
| 5200 | 36.0 | 4.66 | 49.0 | 5.30 |
| 5300 | 35.9 | 4.76 | 48.9 | 5.42 |
| 5400 | 35.8 | 4.86 | 48.7 | 5.53 |
| 5500 | 35.6 | 4.96 | 48.6 | 5.65 |
| 5600 | 35.5 | 5.07 | 48.5 | 5.77 |
| 5700 | 35.4 | 5.17 | 48.3 | 5.88 |
| 5800 | 35.3 | 5.27 | 48.2 | 6.00 |

### IEEE Std 1528-2013

Refer to Table 3 within the IEEE Std 1528-2013

### Dielectric Property Measurements Results:

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.

| Date      | Freq. (MHz) | Liquid Parameters                       | Measured | Target | Delta (%) | Limit $\pm$ (%) |
|-----------|-------------|-----------------------------------------|----------|--------|-----------|-----------------|
| 2017/3/29 | Body 5250   | Relative Permittivity ( $\epsilon_r$ ): | 48.99    | 48.95  | 0.08      | 10              |
|           |             | Conductivity ( $\sigma$ ):              | 5.52     | 5.35   | 3.06      | 5               |
|           | Body 5150   | Relative Permittivity ( $\epsilon_r$ ): | 49.35    | 49.09  | 0.54      | 10              |
|           |             | Conductivity ( $\sigma$ ):              | 5.36     | 5.24   | 2.44      | 5               |
|           | Body 5350   | Relative Permittivity ( $\epsilon_r$ ): | 48.93    | 48.82  | 0.23      | 10              |
|           |             | Conductivity ( $\sigma$ ):              | 5.73     | 5.47   | 4.76      | 5               |
| 2017/3/30 | Body 5600   | Relative Permittivity ( $\epsilon_r$ ): | 47.08    | 48.48  | -2.88     | 10              |
|           |             | Conductivity ( $\sigma$ ):              | 5.90     | 5.76   | 2.46      | 5               |
|           | Body 5470   | Relative Permittivity ( $\epsilon_r$ ): | 47.40    | 48.65  | -2.58     | 10              |
|           |             | Conductivity ( $\sigma$ ):              | 5.80     | 5.61   | 3.31      | 5               |
|           | Body 5725   | Relative Permittivity ( $\epsilon_r$ ): | 46.62    | 48.31  | -3.50     | 10              |
|           |             | Conductivity ( $\sigma$ ):              | 6.14     | 5.91   | 4.02      | 5               |
| 2017/4/3  | Body 5750   | Relative Permittivity ( $\epsilon_r$ ): | 47.11    | 48.27  | -2.41     | 10              |
|           |             | Conductivity ( $\sigma$ ):              | 6.22     | 5.94   | 4.84      | 5               |
|           | Body 5725   | Relative Permittivity ( $\epsilon_r$ ): | 47.02    | 48.31  | -2.67     | 10              |
|           |             | Conductivity ( $\sigma$ ):              | 6.15     | 5.91   | 4.17      | 5               |
|           | Body 5850   | Relative Permittivity ( $\epsilon_r$ ): | 46.93    | 48.20  | -2.63     | 10              |
|           |             | Conductivity ( $\sigma$ ):              | 6.24     | 6.00   | 4.00      | 5               |
| 2017/4/5  | Body 2450   | Relative Permittivity ( $\epsilon_r$ ): | 50.90    | 52.70  | -3.42     | 5               |
|           |             | Conductivity ( $\sigma$ ):              | 1.99     | 1.95   | 2.21      | 5               |
|           | Body 2400   | Relative Permittivity ( $\epsilon_r$ ): | 51.11    | 52.77  | -3.15     | 5               |
|           |             | Conductivity ( $\sigma$ ):              | 1.93     | 1.90   | 1.74      | 5               |
|           | Body 2480   | Relative Permittivity ( $\epsilon_r$ ): | 50.80    | 52.66  | -3.54     | 5               |
|           |             | Conductivity ( $\sigma$ ):              | 2.03     | 1.99   | 2.05      | 5               |
| 2017/4/7  | Body 2450   | Relative Permittivity ( $\epsilon_r$ ): | 50.88    | 52.70  | -3.45     | 5               |
|           |             | Conductivity ( $\sigma$ ):              | 1.97     | 1.95   | 1.03      | 5               |
|           | Body 2400   | Relative Permittivity ( $\epsilon_r$ ): | 51.06    | 52.77  | -3.25     | 5               |
|           |             | Conductivity ( $\sigma$ ):              | 1.91     | 1.90   | 0.37      | 5               |
|           | Body 2480   | Relative Permittivity ( $\epsilon_r$ ): | 50.79    | 52.66  | -3.56     | 5               |
|           |             | Conductivity ( $\sigma$ ):              | 2.01     | 1.99   | 0.85      | 5               |

## 11. System Performance 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 remeasured 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  $\pm 0.5$  cm for SAR measurements.
- 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 1GHz) and 15 mm (below 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 12 mm (1GHz to 3GHz) and 15 mm (below 1GHz) was aligned with the dipole.  
For 5 GHz band - The coarse grid with a grid spacing of 10 mm was aligned with the dipole.
- Special 7x7x7 (below 3 GHz) and/or 8x8x7 (above 3 GHz) fine cube was chosen for the cube.
- Distance between probe sensors and phantom surface was set to 2 mm.  
For 5 GHz band - Distance between probe sensors and phantom surface was set to 1.4 mm
- The dipole input power (forward power) was 100 mW(For 5GHz band) or 250 mW(For 2.4GHz band).
- The results are normalized to 1 W input power.

## Reference Target SAR Values

The target(reference) SAR values can be obtained from the calibration certificate of system validation dipoles(Section 15). The target SAR values are SAR measured value in the calibration certificate scaled to 1W.

| System Dipole | Serial No. | Cal. Date  | Freq. (MHz) | Target SAR Values (mW/g) |      |      |
|---------------|------------|------------|-------------|--------------------------|------|------|
|               |            |            |             | 1g/10g                   | Head | Body |
| D2450V2       | 713        | 09/13/2016 | 2450        | 1g                       | 53.6 | 52.0 |
|               |            |            |             | 10g                      | 24.9 | 24.4 |
| D5GHV2        | 1020       | 01/06/2017 | 5250        | 1g                       | 80.0 | 75.6 |
|               |            |            |             | 10g                      | 22.9 | 21.3 |
|               |            |            | 5600        | 1g                       | 83.9 | 79.7 |
|               |            |            |             | 10g                      | 23.9 | 22.4 |
|               |            |            | 5750        | 1g                       | 79.6 | 75.9 |
|               |            |            |             | 10g                      | 22.7 | 21.2 |

## 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.

| Date Tested | System Dipole       |          | T.S.<br>Liquid |     | Measured Results |                     | Target<br>(Ref.<br>Value) | Delta<br>±10 % |
|-------------|---------------------|----------|----------------|-----|------------------|---------------------|---------------------------|----------------|
|             | Type                | Serial # |                |     | Zoom<br>Scan     | Normalize<br>to 1 W |                           |                |
| 3/29/2017   | D5GHzV2<br>5.25 GHz | 1020     | Body           | 1g  | 6.96             | 69.6                | 75.6                      | -7.94          |
|             |                     |          |                | 10g | 1.93             | 19.3                | 21.3                      | -9.39          |
| 3/30/2017   | D5GHzV2<br>5.6 GHz  | 1020     | Body           | 1g  | 7.62             | 76.2                | 79.7                      | -4.39          |
|             |                     |          |                | 10g | 2.10             | 21.0                | 22.4                      | -6.25          |
| 4/3/2017    | D5GHzV2<br>5.75 GHz | 1020     | Body           | 1g  | 7.36             | 73.6                | 75.9                      | -3.03          |
|             |                     |          |                | 10g | 2.05             | 20.5                | 21.2                      | -3.30          |
| 4/5/2017    | D2450V2<br>2.45GHz  | 713      | Body           | 1g  | 13.80            | 55.2                | 52.0                      | 6.15           |
|             |                     |          |                | 10g | 6.38             | 25.5                | 24.4                      | 4.42           |
| 4/7/2017    | D2450V2<br>2.45GHz  | 713      | Body           | 1g  | 13.80            | 55.2                | 52.0                      | 6.15           |
|             |                     |          |                | 10g | 6.47             | 25.9                | 24.4                      | 5.89           |

## 12. RF Exposure Conditions (Test Configurations)

Refer to Section 17 “Antenna Dimensions and Separation Distances” for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.

### 12.1. Standalone SAR Test Exclusion Considerations

Standalone SAR test exclusion was based upon the following criteria:

1. According to KDB 447498D01 § 4.1 f) if the antenna is at close proximity to user then the outer surface of the DUT should be treated as the radiating surface. The test separation distance is then determined by the smallest distance between the outer surface of the device and the user. For the purposes of this report close proximity has been defined as closer than 50 mm. For antennas <50 mm from the Rear or edge the separation distance used for the SAR exclusion calculations is 5 mm.
2. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.
3. If the antenna to DUT adjacent Rear or edge separation distance is >50mm, the actual antenna to user separation distance is used to determine SAR exclusion and estimated SAR value.
4. Output power is the maximum rated power (including tune-up or manufacturing tolerances) and includes source-based averaging.

### 12.1.1. SAR exclusion calculations for WLAN SISO (1 Tx) and Bluetooth for antenna <50mm from the user

SAR exclusion calculations for antenna <50mm from the user

| Antenna | Tx Interface | Frequency (MHz) | Output Power |    | Separation Distances (mm) |       |       |       |       |            |       | Calculated Threshold Value |         |         |                   |                   |                   |       |
|---------|--------------|-----------------|--------------|----|---------------------------|-------|-------|-------|-------|------------|-------|----------------------------|---------|---------|-------------------|-------------------|-------------------|-------|
|         |              |                 | dBm          | mW | Rear                      | Edge1 | Edge2 | Edge3 | Edge4 | Edge4 tilt | Front | Rear                       | Edge1   | Edge2   | Edge3             | Edge4             | Edge4 tilt        | Front |
| Main    | WLAN         | 2462            | 15.00        | 32 | 19                        | 163   | 298   | 46    | 3     | 3          |       | 10<br>-MEASURE-            | > 50 mm | > 50 mm | 10<br>-MEASURE-   | 10<br>-MEASURE-   | 10<br>-MEASURE-   |       |
| Main    | WLAN         | 5240            | 13.50        | 22 | 19                        | 163   | 298   | 46    | 3     | 3          |       | 10.1<br>-MEASURE-          | > 50 mm | > 50 mm | 10.1<br>-MEASURE- | 10.1<br>-MEASURE- | 10.1<br>-MEASURE- |       |
| Main    | WLAN         | 5320            | 13.50        | 22 | 19                        | 163   | 298   | 46    | 3     | 3          |       | 10.1<br>-MEASURE-          | > 50 mm | > 50 mm | 10.1<br>-MEASURE- | 10.1<br>-MEASURE- | 10.1<br>-MEASURE- |       |
| Main    | WLAN         | 5720            | 13.50        | 22 | 19                        | 163   | 298   | 46    | 3     | 3          |       | 10.5<br>-MEASURE-          | > 50 mm | > 50 mm | 10.5<br>-MEASURE- | 10.5<br>-MEASURE- | 10.5<br>-MEASURE- |       |
| Main    | WLAN         | 5825            | 13.50        | 22 | 19                        | 163   | 298   | 46    | 3     | 3          |       | 10.6<br>-MEASURE-          | > 50 mm | > 50 mm | 10.6<br>-MEASURE- | 10.6<br>-MEASURE- | 10.6<br>-MEASURE- |       |

SAR exclusion calculations for antenna <50mm from the user

| Antenna | Tx Interface | Frequency (MHz) | Output Power |    | Separation Distances (mm) |       |       |            |       |       |       | Calculated Threshold Value |         |                   |                   |                   |         |       |
|---------|--------------|-----------------|--------------|----|---------------------------|-------|-------|------------|-------|-------|-------|----------------------------|---------|-------------------|-------------------|-------------------|---------|-------|
|         |              |                 | dBm          | mW | Rear                      | Edge1 | Edge2 | Edge2 tilt | Edge3 | Edge4 | Front | Rear                       | Edge1   | Edge2             | Edge2 tilt        | Edge3             | Edge4   | Front |
| Aux     | WLAN         | 2462            | 15.00        | 32 | 19                        | 170   | 5     | 5          | 42    | 297   |       | 10<br>-MEASURE-            | > 50 mm | 10<br>-MEASURE-   | 10<br>-MEASURE-   | 10<br>-MEASURE-   | > 50 mm |       |
| Aux     | WLAN         | 5240            | 13.50        | 22 | 19                        | 170   | 5     | 5          | 42    | 297   |       | 10.1<br>-MEASURE-          | > 50 mm | 10.1<br>-MEASURE- | 10.1<br>-MEASURE- | 10.1<br>-MEASURE- | > 50 mm |       |
| Aux     | WLAN         | 5320            | 13.50        | 22 | 19                        | 170   | 5     | 5          | 42    | 297   |       | 10.1<br>-MEASURE-          | > 50 mm | 10.1<br>-MEASURE- | 10.1<br>-MEASURE- | 10.1<br>-MEASURE- | > 50 mm |       |
| Aux     | WLAN         | 5720            | 13.50        | 22 | 19                        | 170   | 5     | 5          | 42    | 297   |       | 10.5<br>-MEASURE-          | > 50 mm | 10.5<br>-MEASURE- | 10.5<br>-MEASURE- | 10.5<br>-MEASURE- | > 50 mm |       |
| Aux     | WLAN         | 5825            | 13.50        | 22 | 19                        | 170   | 5     | 5          | 42    | 297   |       | 10.6<br>-MEASURE-          | > 50 mm | 10.6<br>-MEASURE- | 10.6<br>-MEASURE- | 10.6<br>-MEASURE- | > 50 mm |       |
| Aux     | BT           | 2480            | 9.00         | 8  | 19                        | 170   | 5     | 5          | 42    | 297   |       | 2.5<br>-EXEMPT-            | > 50 mm | 2.5<br>-EXEMPT-   | 2.5<br>-EXEMPT-   | 2.5<br>-EXEMPT-   | > 50 mm |       |

#### Note(s):

1. According to KDB 447498D01, if the calculated threshold value is >3 then SAR testing is required.
2. SAR exclusion was not assessed for 2 Tx (MIMO) as the higher 1 Tx (SISO) SAR values were used for simultaneous transmission analysis.
3. The separation distances from antennas to the Rear or the edge were input. For antennas <50 mm from the Rear or edges the separation distance used for the SAR exclusion calculations is 5 mm.
4. The SAR test of Rear and some edge with Bluetooth was excluded, but we measured Rear and some edge with Bluetooth for simultaneous transmission consideration with WWAN antenna.

## 12.1.2. SAR exclusion calculations for WLAN SISO (1 Tx) and Bluetooth for antenna >50mm from the user

SAR exclusion calculations for antenna >50mm from the user

| Antenna | Tx Interface | Frequency (MHz) | Output Power |    | Separation Distances (mm) |       |       |       |       |            |       | Calculated Threshold Value |                       |                       |         |         |            |       |
|---------|--------------|-----------------|--------------|----|---------------------------|-------|-------|-------|-------|------------|-------|----------------------------|-----------------------|-----------------------|---------|---------|------------|-------|
|         |              |                 | dBm          | mW | Rear                      | Edge1 | Edge2 | Edge3 | Edge4 | Edge4 tilt | Front | Rear                       | Edge1                 | Edge2                 | Edge3   | Edge4   | Edge4 tilt | Front |
| Main    | WLAN         | 2462            | 15.00        | 32 | 19                        | 163   | 298   | 46    | 3     | 3          |       | < 50 mm                    | 1220.6 mW<br>-EXEMPT- | 2574.6 mW<br>-EXEMPT- | < 50 mm | < 50 mm | < 50 mm    |       |
| Main    | WLAN         | 5240            | 13.50        | 22 | 19                        | 163   | 298   | 46    | 3     | 3          |       | < 50 mm                    | 1190.5 mW<br>-EXEMPT- | 2544.5 mW<br>-EXEMPT- | < 50 mm | < 50 mm | < 50 mm    |       |
| Main    | WLAN         | 5320            | 13.50        | 22 | 19                        | 163   | 298   | 46    | 3     | 3          |       | < 50 mm                    | 1190 mW<br>-EXEMPT-   | 2544 mW<br>-EXEMPT-   | < 50 mm | < 50 mm | < 50 mm    |       |
| Main    | WLAN         | 5720            | 13.50        | 22 | 19                        | 163   | 298   | 46    | 3     | 3          |       | < 50 mm                    | 1187.7 mW<br>-EXEMPT- | 2541.7 mW<br>-EXEMPT- | < 50 mm | < 50 mm | < 50 mm    |       |
| Main    | WLAN         | 5825            | 13.50        | 22 | 19                        | 163   | 298   | 46    | 3     | 3          |       | < 50 mm                    | 1187.2 mW<br>-EXEMPT- | 2541.2 mW<br>-EXEMPT- | < 50 mm | < 50 mm | < 50 mm    |       |

SAR exclusion calculations for antenna >50mm from the user

| Antenna | Tx Interface | Frequency (MHz) | Output Power |    | Separation Distances (mm) |       |       |            |       |       |       | Calculated Threshold Value |                       |         |            |         |                       |       |
|---------|--------------|-----------------|--------------|----|---------------------------|-------|-------|------------|-------|-------|-------|----------------------------|-----------------------|---------|------------|---------|-----------------------|-------|
|         |              |                 | dBm          | mW | Rear                      | Edge1 | Edge2 | Edge2 tilt | Edge3 | Edge4 | Front | Rear                       | Edge1                 | Edge2   | Edge2 tilt | Edge3   | Edge4                 | Front |
| Aux     | WLAN         | 2462            | 15.00        | 32 | 19                        | 170   | 5     | 5          | 42    | 297   |       | < 50 mm                    | 1293.6 mW<br>-EXEMPT- | < 50 mm | < 50 mm    | < 50 mm | 2562.6 mW<br>-EXEMPT- |       |
| Aux     | WLAN         | 5240            | 13.50        | 22 | 19                        | 170   | 5     | 5          | 42    | 297   |       | < 50 mm                    | 1263.5 mW<br>-EXEMPT- | < 50 mm | < 50 mm    | < 50 mm | 2532.5 mW<br>-EXEMPT- |       |
| Aux     | WLAN         | 5320            | 13.50        | 22 | 19                        | 170   | 5     | 5          | 42    | 297   |       | < 50 mm                    | 1263 mW<br>-EXEMPT-   | < 50 mm | < 50 mm    | < 50 mm | 2532 mW<br>-EXEMPT-   |       |
| Aux     | WLAN         | 5720            | 13.50        | 22 | 19                        | 170   | 5     | 5          | 42    | 297   |       | < 50 mm                    | 1260.7 mW<br>-EXEMPT- | < 50 mm | < 50 mm    | < 50 mm | 2529.7 mW<br>-EXEMPT- |       |
| Aux     | WLAN         | 5825            | 13.50        | 22 | 19                        | 170   | 5     | 5          | 42    | 297   |       | < 50 mm                    | 1260.2 mW<br>-EXEMPT- | < 50 mm | < 50 mm    | < 50 mm | 2529.2 mW<br>-EXEMPT- |       |
| Aux     | BT           | 2480            | 9.00         | 8  | 19                        | 170   | 5     | 5          | 42    | 297   |       | < 50 mm                    | 1293.3 mW<br>-EXEMPT- | < 50 mm | < 50 mm    | < 50 mm | 2562.3 mW<br>-EXEMPT- |       |

### Note(s):

1. According to KDB 447498D01, if the calculated Power threshold is less than the output power then SAR testing is required.
2. SAR exclusion was not assessed for 2 Tx (MIMO) as the higher 1 Tx (SISO) SAR values were used for simultaneous transmission analysis.
3. The separation distances from antennas to the Rear or the edge were input. For antennas <50 mm from the Rear or edges the separation distance used for the SAR exclusion calculations is 5 mm.
4. The SAR test of Edge 1 with WLAN Main and Aux antenna was excluded, but we measured Edge 1 with WLAN Main and Aux antenna for simultaneous transmission consideration with WWAN antenna.

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

SAR Test Reduction criteria are as follows:

### KDB 248227 D01 SAR meas for 802.11 v02:

SAR test reduction for 802.11 WLAN 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 closest/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.
  - o 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.
  - o 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.
  - o 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.

### 13.1. WLAN 2.4 GHz Band

#### Main Antenna

| Test Position | Mode    | Dist.<br>(mm) | Ch #. | Freq.<br>(MHz) | Power (dBm)      |       | 1-g SAR (W/kg) |        | Plot<br>No. | Note |
|---------------|---------|---------------|-------|----------------|------------------|-------|----------------|--------|-------------|------|
|               |         |               |       |                | Tune-up<br>limit | Meas. | Meas.          | Scaled |             |      |
| Edge1         | 802.11b | 0             | 1     | 2412           | 15.00            | 14.92 | 0.014          | 0.014  | 1           |      |
|               |         |               | 6     | 2437           | 15.00            | 14.74 |                |        |             |      |
|               |         |               | 11    | 2462           | 15.00            | 14.81 |                |        |             |      |
| Edge3         | 802.11b | 0             | 1     | 2412           | 15.00            | 14.92 | 0.043          | 0.044  | 2           |      |
|               |         |               | 6     | 2437           | 15.00            | 14.74 |                |        |             |      |
|               |         |               | 11    | 2462           | 15.00            | 14.81 |                |        |             |      |
| Edge4         | 802.11b | 0             | 1     | 2412           | 15.00            | 14.92 | 0.755          | 0.769  | 3           |      |
|               |         |               | 6     | 2437           | 15.00            | 14.74 |                |        |             |      |
|               |         |               | 11    | 2462           | 15.00            | 14.81 |                |        |             |      |
| Edge4<br>tilt | 802.11b | 0             | 1     | 2412           | 15.00            | 14.92 | 0.838          | 0.854  | 4           |      |
|               |         |               | 6     | 2437           | 15.00            | 14.74 |                |        |             |      |
|               |         |               | 11    | 2462           | 15.00            | 14.81 | 0.811          | 0.847  | 5           |      |
| Rear          | 802.11b | 0             | 1     | 2412           | 15.00            | 14.92 | 0.094          | 0.096  | 6           |      |
|               |         |               | 6     | 2437           | 15.00            | 14.74 |                |        |             |      |
|               |         |               | 11    | 2462           | 15.00            | 14.81 |                |        |             |      |

#### Auxiliary Antenna

| Test Position | Mode    | Dist.<br>(mm) | Ch #. | Freq.<br>(MHz) | Power (dBm)      |       | 1-g SAR (W/kg) |        | Plot<br>No. | Note |
|---------------|---------|---------------|-------|----------------|------------------|-------|----------------|--------|-------------|------|
|               |         |               |       |                | Tune-up<br>limit | Meas. | Meas.          | Scaled |             |      |
| Edge1         | 802.11b | 0             | 1     | 2412           | 15.00            | 14.85 | 0.013          | 0.013  | 7           |      |
|               |         |               | 6     | 2437           | 15.00            | 14.75 |                |        |             |      |
|               |         |               | 11    | 2462           | 15.00            | 14.68 |                |        |             |      |
| Edge2         | 802.11b | 0             | 1     | 2412           | 15.00            | 14.85 | 0.634          | 0.656  | 8           |      |
|               |         |               | 6     | 2437           | 15.00            | 14.75 |                |        |             |      |
|               |         |               | 11    | 2462           | 15.00            | 14.68 |                |        |             |      |
| Edge2<br>tilt | 802.11b | 0             | 1     | 2412           | 15.00            | 14.85 | 0.677          | 0.701  | 9           |      |
|               |         |               | 6     | 2437           | 15.00            | 14.75 |                |        |             |      |
|               |         |               | 11    | 2462           | 15.00            | 14.68 |                |        |             |      |
| Edge3         | 802.11b | 0             | 1     | 2412           | 15.00            | 14.85 | 0.044          | 0.046  | 10          |      |
|               |         |               | 6     | 2437           | 15.00            | 14.75 |                |        |             |      |
|               |         |               | 11    | 2462           | 15.00            | 14.68 |                |        |             |      |
| Rear          | 802.11b | 0             | 1     | 2412           | 15.00            | 14.85 | 0.130          | 0.135  | 11          |      |
|               |         |               | 6     | 2437           | 15.00            | 14.75 |                |        |             |      |
|               |         |               | 11    | 2462           | 15.00            | 14.68 |                |        |             |      |

## 13.2. WLAN 5.2/5.3 GHz Band

### Main Antenna

| Test Position | Mode       | Dist.<br>(mm) | Ch #. | Freq.<br>(MHz) | Power (dBm)      |       | 1-g SAR (W/kg) |        | Plot<br>No. | Note |
|---------------|------------|---------------|-------|----------------|------------------|-------|----------------|--------|-------------|------|
|               |            |               |       |                | Tune-up<br>limit | Meas. | Meas.          | Scaled |             |      |
| Edge1         | 802.11ac80 | 0             | 58    | 5290           | 13.50            | 13.47 | 0.049          | 0.049  | 1           |      |
| Edge3         | 802.11ac80 | 0             | 58    | 5290           | 13.50            | 13.47 | 0.016          | 0.016  | 2           |      |
| Edge4         | 802.11ac80 | 0             | 58    | 5290           | 13.50            | 13.47 | 0.616          | 0.620  | 3           |      |
| Edge4<br>tilt | 802.11ac80 | 0             | 58    | 5290           | 13.50            | 13.47 | 0.758          | 0.763  | 4           |      |
| Rear          | 802.11ac80 | 0             | 58    | 5290           | 13.50            | 13.47 | 0.075          | 0.076  | 5           |      |

### Auxiliary Antenna

| Test Position | Mode       | Dist.<br>(mm) | Ch #. | Freq.<br>(MHz) | Power (dBm)      |       | 1-g SAR (W/kg) |        | Plot<br>No. | Note |
|---------------|------------|---------------|-------|----------------|------------------|-------|----------------|--------|-------------|------|
|               |            |               |       |                | Tune-up<br>limit | Meas. | Meas.          | Scaled |             |      |
| Edge1         | 802.11ac80 | 0             | 58    | 5290           | 13.50            | 13.29 | 0.029          | 0.030  | 6           |      |
| Edge2         | 802.11ac80 | 0             | 58    | 5290           | 13.50            | 13.29 | 1.050          | 1.102  | 7           |      |
| Edge2<br>tilt | 802.11ac80 | 0             | 58    | 5290           | 13.50            | 13.29 | 1.130          | 1.186  | 8           |      |
| Edge3         | 802.11ac80 | 0             | 58    | 5290           | 13.50            | 13.29 | 0.116          | 0.122  | 9           |      |
| Rear          | 802.11ac80 | 0             | 58    | 5290           | 13.50            | 13.29 | 0.102          | 0.107  | 10          |      |

### 13.3. WLAN 5.5 GHz Band

#### Main Antenna

| Test Position | Mode       | Dist. (mm) | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg) |        | Plot No. | Note |
|---------------|------------|------------|-------|-------------|---------------|-------|----------------|--------|----------|------|
|               |            |            |       |             | Tune-up limit | Meas. | Meas.          | Scaled |          |      |
| Edge1         | 802.11ac80 | 0          | 106   | 5530        | 13.50         | 13.19 | 0.080          | 0.086  | 1        |      |
|               |            |            | 122   | 5610        | 13.50         | 13.03 |                |        |          |      |
|               |            |            | 138   | 5690        | 13.50         | 13.08 |                |        |          |      |
| Edge3         | 802.11ac80 | 0          | 106   | 5530        | 13.50         | 13.19 | 0.000          | 0.000  | 2        |      |
|               |            |            | 122   | 5610        | 13.50         | 13.03 |                |        |          |      |
|               |            |            | 138   | 5690        | 13.50         | 13.08 |                |        |          |      |
| Edge4         | 802.11ac80 | 0          | 106   | 5530        | 13.50         | 13.19 | 0.567          | 0.609  | 3        |      |
|               |            |            | 122   | 5610        | 13.50         | 13.03 |                |        |          |      |
|               |            |            | 138   | 5690        | 13.50         | 13.08 |                |        |          |      |
| Edge4 tilt    | 802.11ac80 | 0          | 106   | 5530        | 13.50         | 13.19 | 0.690          | 0.741  | 4        |      |
|               |            |            | 122   | 5610        | 13.50         | 13.03 |                |        |          |      |
|               |            |            | 138   | 5690        | 13.50         | 13.08 |                |        |          |      |
| Rear          | 802.11ac80 | 0          | 106   | 5530        | 13.50         | 13.19 | 0.086          | 0.092  | 5        |      |
|               |            |            | 122   | 5610        | 13.50         | 13.03 |                |        |          |      |
|               |            |            | 138   | 5690        | 13.50         | 13.08 |                |        |          |      |

#### Auxiliary Antenna

| Test Position | Mode       | Dist. (mm) | Ch #. | Freq. (MHz) | Power (dBm)   |       | 1-g SAR (W/kg) |        | Plot No. | Note |
|---------------|------------|------------|-------|-------------|---------------|-------|----------------|--------|----------|------|
|               |            |            |       |             | Tune-up limit | Meas. | Meas.          | Scaled |          |      |
| Edge1         | 802.11ac80 | 0          | 106   | 5530        | 13.50         | 13.45 | 0.017          | 0.017  | 6        |      |
|               |            |            | 122   | 5610        | 13.50         | 13.32 |                |        |          |      |
|               |            |            | 138   | 5690        | 13.50         | 13.34 |                |        |          |      |
| Edge2         | 802.11ac80 | 0          | 106   | 5530        | 13.50         | 13.45 | 1.000          | 1.012  | 7        |      |
|               |            |            | 122   | 5610        | 13.50         | 13.32 |                |        |          |      |
|               |            |            | 138   | 5690        | 13.50         | 13.34 | 0.712          | 0.739  | 8        |      |
| Edge2 tilt    | 802.11ac80 | 0          | 106   | 5530        | 13.50         | 13.45 | 1.120          | 1.133  | 9        |      |
|               |            |            | 122   | 5610        | 13.50         | 13.32 |                |        |          |      |
|               |            |            | 138   | 5690        | 13.50         | 13.34 | 0.907          | 0.941  | 10       |      |
| Edge3         | 802.11ac80 | 0          | 106   | 5530        | 13.50         | 13.45 | 0.076          | 0.077  | 11       |      |
|               |            |            | 122   | 5610        | 13.50         | 13.32 |                |        |          |      |
|               |            |            | 138   | 5690        | 13.50         | 13.34 |                |        |          |      |
| Rear          | 802.11ac80 | 0          | 106   | 5530        | 13.50         | 13.45 | 0.138          | 0.140  | 12       |      |
|               |            |            | 122   | 5610        | 13.50         | 13.32 |                |        |          |      |
|               |            |            | 138   | 5690        | 13.50         | 13.34 |                |        |          |      |

## 13.4. WLAN 5.8 GHz Band

### Main Antenna

| Test Position | Mode       | Dist.<br>(mm) | Ch #. | Freq.<br>(MHz) | Power (dBm)      |       | 1-g SAR (W/kg) |           | Plot<br>No. | Note |
|---------------|------------|---------------|-------|----------------|------------------|-------|----------------|-----------|-------------|------|
|               |            |               |       |                | Tune-up<br>limit | Meas. | Meas.          | Scaled    |             |      |
| Edge1         | 802.11ac80 | 0             | 155   | 5775           | 13.50            | 13.27 | 0.062          | 0.065     | 1           |      |
| Edge3         | 802.11ac80 | 0             | 155   | 5775           | 13.50            | 13.27 | 0.0000154      | 0.0000162 | 2           |      |
| Edge4         | 802.11ac80 | 0             | 155   | 5775           | 13.50            | 13.27 | 0.674          | 0.711     | 3           |      |
| Edge4<br>tilt | 802.11ac80 | 0             | 155   | 5775           | 13.50            | 13.27 | 0.788          | 0.831     | 4           |      |
| Rear          | 802.11ac80 | 0             | 155   | 5775           | 13.50            | 13.27 | 0.110          | 0.116     | 5           |      |

### Auxiliary Antenna

| Test Position | Mode       | Dist.<br>(mm) | Ch #. | Freq.<br>(MHz) | Power (dBm)      |       | 1-g SAR (W/kg) |        | Plot<br>No. | Note |
|---------------|------------|---------------|-------|----------------|------------------|-------|----------------|--------|-------------|------|
|               |            |               |       |                | Tune-up<br>limit | Meas. | Meas.          | Scaled |             |      |
| Edge1         | 802.11ac80 | 0             | 155   | 5775           | 13.50            | 13.36 | 0.013          | 0.013  | 6           |      |
| Edge2         | 802.11ac80 | 0             | 155   | 5775           | 13.50            | 13.36 | 0.665          | 0.687  | 7           |      |
| Edge2<br>tilt | 802.11ac80 | 0             | 155   | 5775           | 13.50            | 13.36 | 0.941          | 0.972  | 8           |      |
| Edge3         | 802.11ac80 | 0             | 155   | 5775           | 13.50            | 13.36 | 0.028          | 0.029  | 9           |      |
| Rear          | 802.11ac80 | 0             | 155   | 5775           | 13.50            | 13.36 | 0.137          | 0.141  | 10          |      |

## 13.5. Bluetooth

### Auxiliary Antenna

| Test Position | Mode | Dist.<br>(mm) | Ch #. | Freq.<br>(MHz) | Power (dBm)      |       | 1-g SAR (W/kg) |           | Plot<br>No. | Note |
|---------------|------|---------------|-------|----------------|------------------|-------|----------------|-----------|-------------|------|
|               |      |               |       |                | Tune-up<br>limit | Meas. | Meas.          | Scaled    |             |      |
| Edge1         | DH5  | 0             | 0     | 2402           | 9.00             | 7.83  |                |           |             |      |
|               |      |               | 39    | 2441           | 9.00             | 8.05  | 0.0000489      | 0.0000609 | 1           |      |
|               |      |               | 78    | 2480           | 9.00             | 7.97  |                |           |             |      |
| Edge2         | DH5  | 0             | 0     | 2402           | 9.00             | 7.83  |                |           |             |      |
|               |      |               | 39    | 2441           | 9.00             | 8.05  | 0.159          | 0.198     | 2           |      |
|               |      |               | 78    | 2480           | 9.00             | 7.97  |                |           |             |      |
| Edge2<br>tilt | DH5  | 0             | 0     | 2402           | 9.00             | 7.83  |                |           |             |      |
|               |      |               | 39    | 2441           | 9.00             | 8.05  | 0.165          | 0.205     | 3           |      |
|               |      |               | 78    | 2480           | 9.00             | 7.97  |                |           |             |      |
| Edge3         | DH5  | 0             | 0     | 2402           | 9.00             | 7.83  |                |           |             |      |
|               |      |               | 39    | 2441           | 9.00             | 8.05  | 0.011          | 0.014     | 4           |      |
|               |      |               | 78    | 2480           | 9.00             | 7.97  |                |           |             |      |
| Rear          | DH5  | 0             | 0     | 2402           | 9.00             | 7.83  |                |           |             |      |
|               |      |               | 39    | 2441           | 9.00             | 8.05  | 0.041          | 0.051     | 5           |      |
|               |      |               | 78    | 2480           | 9.00             | 7.97  |                |           |             |      |

#### Note(s):

According to KDB 447498 D01 General RF Exposure Guidance v05, 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

1.  $\leq 0.8$  W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\leq 100$  MHz
2.  $\leq 0.6$  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
3.  $\leq 0.4$  W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\geq 200$  MHz

## 13.6. Summary of Highest SAR Values

| Technology/<br>Band | Test configuration  |          |             | Mode       | Dist.<br>(mm) | Freq.<br>(MHz) | Power<br>(dBm) | 1g SAR<br>(W/kg) |
|---------------------|---------------------|----------|-------------|------------|---------------|----------------|----------------|------------------|
|                     | Transmit<br>Antenna | Exposure | Position    |            |               |                |                |                  |
| WLAN<br>2.4 GHz     | Main                | Body     | Edge 4 tilt | 802.11b    | 0             | 2412           | 14.92          | 0.854            |
| WLAN<br>5.2/5.3 GHz | Aux                 | Body     | Edge 2 tilt | 802.11ac80 | 0             | 5290           | 13.29          | 1.186            |
| WLAN<br>5.5 GHz     | Aux                 | Body     | Edge 2 tilt | 802.11ac80 | 0             | 5530           | 13.45          | 1.133            |
| WLAN<br>5.8 GHz     | Aux                 | Body     | Edge 2 tilt | 802.11ac80 | 0             | 5775           | 13.36          | 0.972            |
| Bluetooth           | Aux                 | Body     | Edge 2 tilt | DH5        | 0             | 2441           | 8.05           | 0.205            |

Results for the highest scaled SAR values in each frequency band and mode

### 13.7. SAR Measurement Variability and Uncertainty

In accordance with published RF Exposure KDB procedure 865664 D01 SAR measurement 100 MHz to 6 GHz v01. 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 < 0.80 W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is  $\geq 0.80$  W/kg, 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  $\geq 1.45$  W/kg (~ 10% from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

Repeated measurement was not performed when the original highest measured SAR is < 0.80 W/kg

| Wireless Technologies | Test Configuration |          |             | Mode       | Dist. (mm) | Ch #. | Freq. (MHz) | Meas. SAR (W/kg) |          | Largest to Smallest SAR Ratio | Plot No. |
|-----------------------|--------------------|----------|-------------|------------|------------|-------|-------------|------------------|----------|-------------------------------|----------|
|                       | Transmit Antenna   | Exposure | Position    |            |            |       |             | Original         | Repeated |                               |          |
| WLAN 2.4 GHz          | Main               | Body     | Edge 4 tilt | 802.11b    | 0          | 1     | 2412        | 0.838            | 0.816    | 1.027                         | 1        |
| WLAN 5.2/5.3 GHz      | Aux                | Body     | Edge 2 tilt | 802.11ac80 | 0          | 58    | 5290        | 1.130            | 1.130    | 1.000                         | 2        |
| WLAN 5.5 GHz          | Aux                | Body     | Edge 2 tilt | 802.11ac80 | 0          | 106   | 5530        | 1.120            | 1.120    | 1.000                         | 3        |
| WLAN 5.8 GHz          | Aux                | Body     | Edge 2 tilt | 802.11ac80 | 0          | 155   | 5775        | 0.941            | 0.936    | 1.005                         | 4        |
| Bluetooth             | Aux                | Body     | Edge 2 tilt | DH5        | 0          | 39    | 2441        | 0.165            | N/A      | N/A                           | -        |

#### Note(s):

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

## 14. Simultaneous Transmission SAR Analysis

1. Bluetooth and WLAN Aux cannot simultaneously transmit.
2. WLAN Main antenna is more than 20 cm away from Edge2 and Edge2 tilt. Stand-alone SAR test of Edge2 and Edge 2 tilt with WLAN Main antenna is excluded and Stand-alone Therefore the Simultaneous Transmission SAR Analysis isn't considered.
3. WLAN Aux antenna is more than 20 cm away from Edge4 and Edge4 tilt. Stand-alone SAR test of Edge4 and Edge4 tilt with WLAN Aux antenna is excluded. Therefore the Simultaneous Transmission SAR Analysis isn't considered.
4. All WWAN 1-g SAR values were taken from results recorded in SAR report 11506860H-A, submitted under FCC ID ACJ9TGWW16A.

## 14.1. Sum of the SAR for W-CDMA Band 2, 4 & WLAN 2.4 GHz Band

| Test Position                                        | Data    |         |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark    |
|------------------------------------------------------|---------|---------|-------------------|------------------|-----------|-------------------------|-----------|
|                                                      | WCDMA 2 | WCDMA 4 | WLAN 2.4 GHz Main | WLAN 2.4 GHz Aux | Bluetooth |                         |           |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.919   |         | 0.014             |                  | 0.0000609 | 0.933                   |           |
|                                                      |         | 1.085   | 0.014             |                  | 0.0000609 | 1.099                   |           |
|                                                      | 0.919   |         |                   | 0.013            |           | 0.932                   |           |
|                                                      |         | 1.085   |                   | 0.013            |           | 1.098                   |           |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.919   |         | 0.014             | 0.013            |           | 0.946                   |           |
|                                                      |         | 1.085   | 0.014             | 0.013            |           | 1.112                   |           |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.157   |         | 0.014             |                  | 0.0000609 | 0.171                   |           |
|                                                      |         | 0.271   | 0.014             |                  | 0.0000609 | 0.285                   |           |
|                                                      | 0.157   |         |                   | 0.013            |           | 0.170                   |           |
|                                                      |         | 0.271   |                   | 0.013            |           | 0.284                   |           |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.157   |         | 0.014             | 0.013            |           | 0.184                   |           |
|                                                      |         | 0.271   | 0.014             | 0.013            |           | 0.298                   |           |
| Edge 2, WLAN 1 Tx                                    | 0.026   |         |                   |                  | 0.198     | 0.224                   |           |
|                                                      |         | 0.0093  |                   |                  | 0.198     | 0.207                   |           |
|                                                      | 0.026   |         |                   | 0.656            |           | 0.682                   |           |
|                                                      |         | 0.0093  |                   | 0.656            |           | 0.665                   |           |
| Edge 2 tilt, WLAN 1 Tx                               | 0.017   |         |                   |                  | 0.205     | 0.222                   |           |
|                                                      |         | 0.013   |                   |                  | 0.205     | 0.218                   |           |
|                                                      | 0.017   |         |                   | 0.701            |           | 0.718                   |           |
|                                                      |         | 0.013   |                   | 0.701            |           | 0.714                   |           |
| Edge 3, WLAN 1 Tx                                    | 0.114   |         | 0.044             |                  | 0.014     | 0.172                   |           |
|                                                      |         | 0.00500 | 0.044             |                  | 0.014     | 0.063                   |           |
|                                                      | 0.114   |         |                   | 0.046            |           | 0.160                   |           |
|                                                      |         | 0.00500 |                   | 0.046            |           | 0.051                   |           |
| Edge 3, WLAN 2 Tx                                    | 0.114   |         | 0.044             | 0.046            |           | 0.204                   |           |
|                                                      |         | 0.00500 | 0.044             | 0.046            |           | 0.095                   |           |
| Edge 4, WLAN 1 Tx                                    | 1.067   |         | 0.769             |                  |           | 1.836                   | Table 1-1 |
|                                                      |         | 0.232   | 0.769             |                  |           | 1.001                   |           |
| Edge 4 tilt, WLAN 1 Tx                               | 0.798   |         | 0.854             |                  |           | 1.652                   | Table 1-2 |
|                                                      |         | 0.207   | 0.854             |                  |           | 1.061                   |           |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.647   |         | 0.096             |                  | 0.051     | 0.794                   |           |
|                                                      |         | 0.703   | 0.096             |                  | 0.051     | 0.850                   |           |
|                                                      | 0.647   |         |                   | 0.135            |           | 0.782                   |           |
|                                                      |         | 0.703   |                   | 0.135            |           | 0.838                   |           |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.647   |         | 0.096             | 0.135            |           | 0.878                   |           |
|                                                      |         | 0.703   | 0.096             | 0.135            |           | 0.934                   |           |
| Rear, WLAN 1 Tx<br>21mm → w/WWAN<br>Full power       | 0.550   |         | 0.096             |                  | 0.051     | 0.697                   |           |
|                                                      |         | 0.489   | 0.096             |                  | 0.051     | 0.636                   |           |
|                                                      | 0.550   |         |                   | 0.135            |           | 0.685                   |           |
|                                                      |         | 0.489   |                   | 0.135            |           | 0.624                   |           |
| Rear, WLAN 2 Tx<br>21mm → w/WWAN<br>Full power       | 0.550   |         | 0.096             | 0.135            |           | 0.781                   |           |
|                                                      |         | 0.489   | 0.096             | 0.135            |           | 0.720                   |           |

## SAR to Peak Location Separation Ratio (SPLSR)

**Table 1-1**

| Test Position     | ①<br>WCDMA<br>Band2 | ②<br>WLAN<br>2.4GHz<br>(Main Ant) | ③<br>WLAN<br>2.4GHz<br>(Aux Ant) | ④<br>BT<br>(Aux Ant) | $\Sigma$ 1-g SAR<br>(mW/g) |       | Calculate<br>d distance<br>(mm) | SPLSR<br>( $\leq 0.04$ ) | Volume<br>Scan<br>(Yes/ No) | Figure |
|-------------------|---------------------|-----------------------------------|----------------------------------|----------------------|----------------------------|-------|---------------------------------|--------------------------|-----------------------------|--------|
| Edge 4, WLAN 1 Tx | 1.067               | 0.769                             |                                  |                      | ① + ②                      | 1.836 | 179.5                           | 0.014                    | No                          | X1     |

**Table 1-2**

| Test Position            | ①<br>WCDMA<br>Band2 | ②<br>WLAN<br>2.4GHz<br>(Main Ant) | ③<br>WLAN<br>2.4GHz<br>(Aux Ant) | ④<br>BT<br>(Aux Ant) | $\Sigma$ 1-g SAR<br>(mW/g) |       | Calculated<br>distance<br>(mm) | SPLSR<br>( $\leq 0.04$ ) | Volume<br>Scan<br>(Yes/ No) | Figure |
|--------------------------|---------------------|-----------------------------------|----------------------------------|----------------------|----------------------------|-------|--------------------------------|--------------------------|-----------------------------|--------|
| Edge 4 tit,<br>WLAN 1 Tx | 0.798               | 0.854                             |                                  |                      | ① + ②                      | 1.652 | 171.2                          | 0.012                    | No                          | X2     |

### Conclusion:

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

## 14.2. Sum of the SAR for W-CDMA Band 2, 4 & WLAN 5.2/5.3 GHz Band

| Test Position                                        | Data    |         |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark    |
|------------------------------------------------------|---------|---------|-------------------|------------------|-----------|-------------------------|-----------|
|                                                      | WCDMA 2 | WCDMA 4 | WLAN 5.3 GHz Main | WLAN 5.3 GHz Aux | Bluetooth |                         |           |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.919   |         | 0.049             |                  | 0.0000609 | 0.968                   |           |
|                                                      |         | 1.085   | 0.049             |                  | 0.0000609 | 1.134                   |           |
|                                                      | 0.919   |         |                   | 0.030            |           | 0.949                   |           |
|                                                      |         | 1.085   |                   | 0.030            |           | 1.115                   |           |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.919   |         | 0.049             | 0.030            |           | 0.998                   |           |
|                                                      |         | 1.085   | 0.049             | 0.030            |           | 1.164                   |           |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.157   |         | 0.049             |                  | 0.0000609 | 0.206                   |           |
|                                                      |         | 0.271   | 0.049             |                  | 0.0000609 | 0.320                   |           |
|                                                      | 0.157   |         |                   | 0.030            |           | 0.187                   |           |
|                                                      |         | 0.271   |                   | 0.030            |           | 0.301                   |           |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.157   |         | 0.049             | 0.030            |           | 0.236                   |           |
|                                                      |         | 0.271   | 0.049             | 0.030            |           | 0.350                   |           |
| Edge 2, WLAN 1 Tx                                    | 0.026   |         |                   |                  | 0.198     | 0.224                   |           |
|                                                      |         | 0.0093  |                   |                  | 0.198     | 0.207                   |           |
|                                                      | 0.026   |         |                   | 1.102            |           | 1.128                   |           |
|                                                      |         | 0.0093  |                   | 1.102            |           | 1.111                   |           |
| Edge 2 tilt, WLAN 1 Tx                               | 0.017   |         |                   |                  | 0.205     | 0.222                   |           |
|                                                      |         | 0.013   |                   |                  | 0.205     | 0.218                   |           |
|                                                      | 0.017   |         |                   | 1.186            |           | 1.203                   |           |
|                                                      |         | 0.013   |                   | 1.186            |           | 1.199                   |           |
| Edge 3, WLAN 1 Tx                                    | 0.114   |         | 0.016             |                  | 0.014     | 0.144                   |           |
|                                                      |         | 0.00500 | 0.016             |                  | 0.014     | 0.035                   |           |
|                                                      | 0.114   |         |                   | 0.122            |           | 0.236                   |           |
|                                                      |         | 0.00500 |                   | 0.122            |           | 0.127                   |           |
| Edge 3, WLAN 2 Tx                                    | 0.114   |         | 0.016             | 0.122            |           | 0.252                   |           |
|                                                      |         | 0.00500 | 0.016             | 0.122            |           | 0.143                   |           |
| Edge 4, WLAN 1 Tx                                    | 1.067   |         | 0.620             |                  |           | 1.687                   | Table 2-1 |
|                                                      |         | 0.232   | 0.620             |                  |           | 0.852                   |           |
| Edge 4 tilt, WLAN 1 Tx                               | 0.798   |         | 0.763             |                  |           | 1.561                   |           |
|                                                      |         | 0.207   | 0.763             |                  |           | 0.970                   |           |
|                                                      | 0.647   |         | 0.076             |                  | 0.051     | 0.774                   |           |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   |         | 0.703   | 0.076             |                  | 0.051     | 0.830                   |           |
|                                                      | 0.647   |         |                   | 0.107            |           | 0.754                   |           |
|                                                      |         | 0.703   |                   | 0.107            |           | 0.810                   |           |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.647   |         | 0.076             | 0.107            |           | 0.830                   |           |
|                                                      |         | 0.703   | 0.076             | 0.107            |           | 0.886                   |           |
| Rear, WLAN 1 Tx<br>21mm → w/WWAN<br>Full power       | 0.550   |         | 0.076             |                  | 0.051     | 0.677                   |           |
|                                                      |         | 0.489   | 0.076             |                  | 0.051     | 0.616                   |           |
|                                                      | 0.550   |         |                   | 0.107            |           | 0.657                   |           |
|                                                      |         | 0.489   |                   | 0.107            |           | 0.596                   |           |
| Rear, WLAN 2 Tx<br>21mm → w/WWAN<br>Full power       | 0.550   |         | 0.076             | 0.107            |           | 0.733                   |           |
|                                                      |         | 0.489   | 0.076             | 0.107            |           | 0.672                   |           |

## SAR to Peak Location Separation Ratio (SPLSR)

**Table 2-1**

| Test Position     | ①<br>WCDMA<br>Band2 | ②<br>WLAN<br>5.3GHz<br>(Main Ant) | ③<br>WLAN<br>5.3GHz<br>(Aux Ant) | ④<br>BT<br>(Aux Ant) | $\Sigma$ 1-g SAR<br>(mW/g) |       | Calculate<br>d distance<br>(mm) | SPLSR<br>( $\leq 0.04$ ) | Volume<br>Scan<br>(Yes/ No) | Figure |
|-------------------|---------------------|-----------------------------------|----------------------------------|----------------------|----------------------------|-------|---------------------------------|--------------------------|-----------------------------|--------|
| Edge 4, WLAN 1 Tx | 1.067               | 0.620                             |                                  |                      | ① + ②                      | 1.687 | 166.0                           | 0.013                    | No                          | X3     |

### **Conclusion:**

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

### 14.3. Sum of the SAR for W-CDMA Band 2, 4 & WLAN 5.5 GHz Band

| Test Position                                        | Data    |         |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark    |
|------------------------------------------------------|---------|---------|-------------------|------------------|-----------|-------------------------|-----------|
|                                                      | WCDMA 2 | WCDMA 4 | WLAN 5.5 GHz Main | WLAN 5.5 GHz Aux | Bluetooth |                         |           |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.919   |         | 0.086             |                  | 0.0000609 | 1.005                   |           |
|                                                      |         | 1.085   | 0.086             |                  | 0.0000609 | 1.171                   |           |
|                                                      | 0.919   |         |                   | 0.017            |           | 0.936                   |           |
|                                                      |         | 1.085   |                   | 0.017            |           | 1.102                   |           |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.919   |         | 0.086             | 0.017            |           | 1.022                   |           |
|                                                      |         | 1.085   | 0.086             | 0.017            |           | 1.188                   |           |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.157   |         | 0.086             |                  | 0.0000609 | 0.243                   |           |
|                                                      |         | 0.271   | 0.086             |                  | 0.0000609 | 0.357                   |           |
|                                                      | 0.157   |         |                   | 0.017            |           | 0.174                   |           |
|                                                      |         | 0.271   |                   | 0.017            |           | 0.288                   |           |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.157   |         | 0.086             | 0.017            |           | 0.260                   |           |
|                                                      |         | 0.271   | 0.086             | 0.017            |           | 0.374                   |           |
| Edge 2, WLAN 1 Tx                                    | 0.026   |         |                   |                  | 0.198     | 0.224                   |           |
|                                                      |         | 0.0093  |                   |                  | 0.198     | 0.207                   |           |
|                                                      | 0.026   |         |                   | 1.012            |           | 1.038                   |           |
|                                                      |         | 0.0093  |                   | 1.012            |           | 1.021                   |           |
| Edge 2 tilt, WLAN 1 Tx                               | 0.017   |         |                   |                  | 0.205     | 0.222                   |           |
|                                                      |         | 0.013   |                   |                  | 0.205     | 0.218                   |           |
|                                                      | 0.017   |         |                   | 1.133            |           | 1.150                   |           |
|                                                      |         | 0.013   |                   | 1.133            |           | 1.146                   |           |
| Edge 3, WLAN 1 Tx                                    | 0.114   |         | 0.000             |                  | 0.014     | 0.128                   |           |
|                                                      |         | 0.00500 | 0.000             |                  | 0.014     | 0.019                   |           |
|                                                      | 0.114   |         |                   | 0.077            |           | 0.191                   |           |
|                                                      |         | 0.00500 |                   | 0.077            |           | 0.082                   |           |
| Edge 3, WLAN 2 Tx                                    | 0.114   |         | 0.000             | 0.077            |           | 0.191                   |           |
|                                                      |         | 0.00500 | 0.000             | 0.077            |           | 0.082                   |           |
| Edge 4, WLAN 1 Tx                                    | 1.067   |         | 0.609             |                  |           | 1.676                   | Table 3-1 |
|                                                      |         | 0.232   | 0.609             |                  |           | 0.841                   |           |
| Edge 4 tilt, WLAN 1 Tx                               | 0.798   |         | 0.741             |                  |           | 1.539                   |           |
|                                                      |         | 0.207   | 0.741             |                  |           | 0.948                   |           |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.647   |         | 0.092             |                  | 0.051     | 0.790                   |           |
|                                                      |         | 0.703   | 0.092             |                  | 0.051     | 0.846                   |           |
|                                                      | 0.647   |         |                   | 0.140            |           | 0.787                   |           |
|                                                      |         | 0.703   |                   | 0.140            |           | 0.843                   |           |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.647   |         | 0.092             | 0.140            |           | 0.879                   |           |
|                                                      |         | 0.703   | 0.092             | 0.140            |           | 0.935                   |           |
| Rear, WLAN 1 Tx<br>21mm → w/WWAN<br>Full power       | 0.550   |         | 0.092             |                  | 0.051     | 0.693                   |           |
|                                                      |         | 0.489   | 0.092             |                  | 0.051     | 0.632                   |           |
|                                                      | 0.550   |         |                   | 0.140            |           | 0.690                   |           |
|                                                      |         | 0.489   |                   | 0.140            |           | 0.629                   |           |
| Rear, WLAN 2 Tx<br>21mm → w/WWAN<br>Full power       | 0.550   |         | 0.092             | 0.140            |           | 0.782                   |           |
|                                                      |         | 0.489   | 0.092             | 0.140            |           | 0.721                   |           |

## SAR to Peak Location Separation Ratio (SPLSR)

**Table 3-1**

| Test Position     | ①<br>WCDMA<br>Band2 | ②<br>WLAN<br>5.5GHz<br>(Main Ant) | ③<br>WLAN<br>5.5GHz<br>(Aux Ant) | ④<br>BT<br>(Aux Ant) | Σ 1-g SAR<br>(mW/g) |       | Calculate<br>d distance<br>(mm) | SPLSR<br>(≤ 0.04) | Volume<br>Scan<br>(Yes/ No) | Figure |
|-------------------|---------------------|-----------------------------------|----------------------------------|----------------------|---------------------|-------|---------------------------------|-------------------|-----------------------------|--------|
| Edge 4, WLAN 1 Tx | 1.067               | 0.609                             |                                  |                      | ① + ②               | 1.676 | 159.1                           | 0.014             | No                          | X4     |

### **Conclusion:**

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

#### 14.4. Sum of the SAR for W-CDMA Band 2, 4 & WLAN 5.8 GHz Band

| Test Position                                        | Data    |         |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark    |
|------------------------------------------------------|---------|---------|-------------------|------------------|-----------|-------------------------|-----------|
|                                                      | WCDMA 2 | WCDMA 4 | WLAN 5.8 GHz Main | WLAN 5.8 GHz Aux | Bluetooth |                         |           |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.919   |         | 0.065             |                  | 0.0000609 | 0.984                   |           |
|                                                      |         | 1.085   | 0.065             |                  | 0.0000609 | 1.150                   |           |
|                                                      | 0.919   |         |                   | 0.013            |           | 0.932                   |           |
|                                                      |         | 1.085   |                   | 0.013            |           | 1.098                   |           |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.919   |         | 0.065             | 0.013            |           | 0.997                   |           |
|                                                      |         | 1.085   | 0.065             | 0.013            |           | 1.163                   |           |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.157   |         | 0.065             |                  | 0.0000609 | 0.222                   |           |
|                                                      |         | 0.271   | 0.065             |                  | 0.0000609 | 0.336                   |           |
|                                                      | 0.157   |         |                   | 0.013            |           | 0.170                   |           |
|                                                      |         | 0.271   |                   | 0.013            |           | 0.284                   |           |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.157   |         | 0.065             | 0.013            |           | 0.235                   |           |
|                                                      |         | 0.271   | 0.065             | 0.013            |           | 0.349                   |           |
| Edge 2, WLAN 1 Tx                                    | 0.026   |         |                   |                  | 0.198     | 0.224                   |           |
|                                                      |         | 0.0093  |                   |                  | 0.198     | 0.207                   |           |
|                                                      | 0.026   |         |                   | 0.687            |           | 0.713                   |           |
|                                                      |         | 0.0093  |                   | 0.687            |           | 0.696                   |           |
| Edge 2 tilt, WLAN 1 Tx                               | 0.017   |         |                   |                  | 0.205     | 0.222                   |           |
|                                                      |         | 0.013   |                   |                  | 0.205     | 0.218                   |           |
|                                                      | 0.017   |         |                   | 0.972            |           | 0.989                   |           |
|                                                      |         | 0.013   |                   | 0.972            |           | 0.985                   |           |
| Edge 3, WLAN 1 Tx                                    | 0.114   |         | 0.0000162         |                  | 0.014     | 0.128                   |           |
|                                                      |         | 0.00500 | 0.0000162         |                  | 0.014     | 0.019                   |           |
|                                                      | 0.114   |         |                   | 0.029            |           | 0.143                   |           |
|                                                      |         | 0.00500 |                   | 0.029            |           | 0.034                   |           |
| Edge 3, WLAN 2 Tx                                    | 0.114   |         | 0.0000162         | 0.029            |           | 0.143                   |           |
|                                                      |         | 0.00500 | 0.0000162         | 0.029            |           | 0.034                   |           |
| Edge 4, WLAN 1 Tx                                    | 1.067   |         | 0.711             |                  |           | 1.778                   | Table 4-1 |
|                                                      |         | 0.232   | 0.711             |                  |           | 0.943                   |           |
| Edge 4 tilt, WLAN 1 Tx                               | 0.798   |         | 0.831             |                  |           | 1.629                   | Table 4-2 |
|                                                      |         | 0.207   | 0.831             |                  |           | 1.038                   |           |
|                                                      |         |         |                   |                  |           |                         |           |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.647   |         | 0.116             |                  | 0.051     | 0.814                   |           |
|                                                      |         | 0.703   | 0.116             |                  | 0.051     | 0.870                   |           |
|                                                      | 0.647   |         |                   | 0.141            |           | 0.788                   |           |
|                                                      |         | 0.703   |                   | 0.141            |           | 0.844                   |           |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.647   |         | 0.116             | 0.141            |           | 0.904                   |           |
|                                                      |         | 0.703   | 0.116             | 0.141            |           | 0.960                   |           |
| Rear, WLAN 1 Tx<br>21mm → w/WWAN<br>Full power       | 0.550   |         | 0.116             |                  | 0.051     | 0.717                   |           |
|                                                      |         | 0.489   | 0.116             |                  | 0.051     | 0.656                   |           |
|                                                      | 0.550   |         |                   | 0.141            |           | 0.691                   |           |
|                                                      |         | 0.489   |                   | 0.141            |           | 0.630                   |           |
| Rear, WLAN 2 Tx<br>21mm → w/WWAN<br>Full power       | 0.550   |         | 0.116             | 0.141            |           | 0.807                   |           |
|                                                      |         | 0.489   | 0.116             | 0.141            |           | 0.746                   |           |

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

**Table 4-1**

| Test Position     | ①<br>WCDMA<br>Band2 | ②<br>WLAN<br>5.8GHz<br>(Main Ant) | ③<br>WLAN<br>5.8GHz<br>(Aux Ant) | ④<br>BT<br>(Aux Ant) | $\Sigma$ 1-g SAR<br>(mW/g) |       | Calculate<br>d distance<br>(mm) | SPLSR<br>( $\leq 0.04$ ) | Volume<br>Scan<br>(Yes/ No) | Figure |
|-------------------|---------------------|-----------------------------------|----------------------------------|----------------------|----------------------------|-------|---------------------------------|--------------------------|-----------------------------|--------|
| Edge 4, WLAN 1 Tx | 1.067               | 0.711                             |                                  |                      | ① + ②                      | 1.778 | 157.0                           | 0.015                    | No                          | X5     |

**Table 4-2**

| Test Position             | ①<br>WCDMA<br>Band2 | ②<br>WLAN<br>5.8GHz<br>(Main Ant) | ③<br>WLAN<br>5.8GHz<br>(Aux Ant) | ④<br>BT<br>(Aux Ant) | $\Sigma$ 1-g SAR<br>(mW/g) |       | Calculate<br>d distance<br>(mm) | SPLSR<br>( $\leq 0.04$ ) | Volume<br>Scan<br>(Yes/ No) | Figure |
|---------------------------|---------------------|-----------------------------------|----------------------------------|----------------------|----------------------------|-------|---------------------------------|--------------------------|-----------------------------|--------|
| Edge 4 tilt,<br>WLAN 1 Tx | 0.798               | 0.831                             |                                  |                      | ① + ②                      | 1.629 | 159.2                           | 0.013                    | No                          | X6     |

### **Conclusion:**

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

## 14.5. Sum of the SAR for W-CDMA Band 5 & WLAN 2.4 GHz Band

| Test Position                                        | Data    |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|---------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | WCDMA 5 | WLAN 2.4 GHz Main | WLAN 2.4 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.757   | 0.014             |                  | 0.0000609 | 0.771                   |        |
|                                                      | 0.757   |                   | 0.013            |           | 0.770                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.757   | 0.014             | 0.013            |           | 0.784                   |        |
| Edge 1, WLAN 1 Tx<br>37mm → w/WWAN<br>Full power     | 0.107   | 0.014             |                  | 0.0000609 | 0.121                   |        |
|                                                      | 0.107   |                   | 0.013            |           | 0.120                   |        |
| Edge 1, WLAN 2 Tx<br>37mm → w/WWAN<br>Full power     | 0.107   | 0.014             | 0.013            |           | 0.134                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.00988 |                   |                  | 0.198     | 0.208                   |        |
|                                                      | 0.00988 |                   | 0.656            |           | 0.666                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.0155  |                   |                  | 0.205     | 0.221                   |        |
|                                                      | 0.0155  |                   | 0.701            |           | 0.717                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.052   | 0.044             |                  | 0.014     | 0.110                   |        |
|                                                      | 0.052   |                   | 0.046            |           | 0.098                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.052   | 0.044             | 0.046            |           | 0.142                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.218   | 0.769             |                  |           | 0.987                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.347   | 0.854             |                  |           | 1.201                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.263   | 0.096             |                  | 0.051     | 0.410                   |        |
|                                                      | 0.263   |                   | 0.135            |           | 0.398                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.263   | 0.096             | 0.135            |           | 0.494                   |        |
| Rear, WLAN 1 Tx<br>20mm → w/WWAN<br>Full power       | 0.156   | 0.096             |                  | 0.051     | 0.303                   |        |
|                                                      | 0.156   |                   | 0.135            |           | 0.291                   |        |
| Rear, WLAN 2 Tx<br>20mm → w/WWAN<br>Full power       | 0.156   | 0.096             | 0.135            |           | 0.387                   |        |

## 14.6. Sum of the SAR for W-CDMA Band 5 & WLAN 5.2/5.3 GHz Band

| Test Position                                        | Data    |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|---------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | WCDMA 5 | WLAN 5.3 GHz Main | WLAN 5.3 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.757   | 0.049             |                  | 0.0000609 | 0.806                   |        |
|                                                      | 0.757   |                   | 0.030            |           | 0.787                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.757   | 0.049             | 0.030            |           | 0.836                   |        |
| Edge 1, WLAN 1 Tx<br>37mm → w/WWAN<br>Full power     | 0.107   | 0.049             |                  | 0.0000609 | 0.156                   |        |
|                                                      | 0.107   |                   | 0.030            |           | 0.137                   |        |
| Edge 1, WLAN 2 Tx<br>37mm → w/WWAN<br>Full power     | 0.107   | 0.049             | 0.030            |           | 0.186                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.00988 |                   |                  | 0.198     | 0.208                   |        |
|                                                      | 0.00988 |                   | 1.102            |           | 1.112                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.0155  |                   |                  | 0.205     | 0.221                   |        |
|                                                      | 0.0155  |                   | 1.186            |           | 1.202                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.052   | 0.016             |                  | 0.014     | 0.082                   |        |
|                                                      | 0.052   |                   | 0.122            |           | 0.174                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.052   | 0.016             | 0.122            |           | 0.190                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.218   | 0.620             |                  |           | 0.838                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.347   | 0.763             |                  |           | 1.110                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.263   | 0.076             |                  | 0.051     | 0.390                   |        |
|                                                      | 0.263   |                   | 0.107            |           | 0.370                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.263   | 0.076             | 0.107            |           | 0.446                   |        |
| Rear, WLAN 1 Tx<br>20mm → w/WWAN<br>Full power       | 0.156   | 0.076             |                  | 0.051     | 0.283                   |        |
|                                                      | 0.156   |                   | 0.107            |           | 0.263                   |        |
| Rear, WLAN 2 Tx<br>20mm → w/WWAN<br>Full power       | 0.156   | 0.076             | 0.107            |           | 0.339                   |        |

## 14.7. Sum of the SAR for W-CDMA Band 5 & WLAN 5.5 GHz Band

| Test Position                                        | Data    |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|---------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | WCDMA 5 | WLAN 5.5 GHz Main | WLAN 5.5 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.757   | 0.086             |                  | 0.0000609 | 0.843                   |        |
|                                                      | 0.757   |                   | 0.017            |           | 0.774                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.757   | 0.086             | 0.017            |           | 0.860                   |        |
| Edge 1, WLAN 1 Tx<br>37mm → w/WWAN<br>Full power     | 0.107   | 0.086             |                  | 0.0000609 | 0.193                   |        |
|                                                      | 0.107   |                   | 0.017            |           | 0.124                   |        |
| Edge 1, WLAN 2 Tx<br>37mm → w/WWAN<br>Full power     | 0.107   | 0.086             | 0.017            |           | 0.210                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.00988 |                   |                  | 0.198     | 0.208                   |        |
|                                                      | 0.00988 |                   | 1.012            |           | 1.022                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.0155  |                   |                  | 0.205     | 0.221                   |        |
|                                                      | 0.0155  |                   | 1.133            |           | 1.149                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.052   | 0.000             |                  | 0.014     | 0.066                   |        |
|                                                      | 0.052   |                   | 0.077            |           | 0.129                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.052   | 0.000             | 0.077            |           | 0.129                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.218   | 0.609             |                  |           | 0.827                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.347   | 0.741             |                  |           | 1.088                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.263   | 0.092             |                  | 0.051     | 0.406                   |        |
|                                                      | 0.263   |                   | 0.140            |           | 0.403                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.263   | 0.092             | 0.140            |           | 0.495                   |        |
| Rear, WLAN 1 Tx<br>20mm → w/WWAN<br>Full power       | 0.156   | 0.092             |                  | 0.051     | 0.299                   |        |
|                                                      | 0.156   |                   | 0.140            |           | 0.296                   |        |
| Rear, WLAN 2 Tx<br>20mm → w/WWAN<br>Full power       | 0.156   | 0.092             | 0.140            |           | 0.388                   |        |

## 14.8. Sum of the SAR for W-CDMA Band 5 & WLAN 5.8 GHz Band

| Test Position                                        | Data    |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|---------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | WCDMA 5 | WLAN 5.8 GHz Main | WLAN 5.8 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.757   | 0.065             |                  | 0.0000609 | 0.822                   |        |
|                                                      | 0.757   |                   | 0.013            |           | 0.770                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.757   | 0.065             | 0.013            |           | 0.835                   |        |
| Edge 1, WLAN 1 Tx<br>37mm → w/WWAN<br>Full power     | 0.107   | 0.065             |                  | 0.0000609 | 0.172                   |        |
|                                                      | 0.107   |                   | 0.013            |           | 0.120                   |        |
| Edge 1, WLAN 2 Tx<br>37mm → w/WWAN<br>Full power     | 0.107   | 0.065             | 0.013            |           | 0.185                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.0155  |                   |                  | 0.198     | 0.214                   |        |
|                                                      | 0.0155  |                   | 0.687            |           | 0.703                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.00645 |                   |                  | 0.205     | 0.211                   |        |
|                                                      | 0.00645 |                   | 0.972            |           | 0.978                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.052   | 0.0000162         |                  | 0.014     | 0.066                   |        |
|                                                      | 0.052   |                   | 0.029            |           | 0.081                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.052   | 0.0000162         | 0.029            |           | 0.081                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.218   | 0.711             |                  |           | 0.929                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.347   | 0.831             |                  |           | 1.178                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.263   | 0.116             |                  | 0.051     | 0.430                   |        |
|                                                      | 0.263   |                   | 0.141            |           | 0.404                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.263   | 0.116             | 0.141            |           | 0.520                   |        |
| Rear, WLAN 1 Tx<br>20mm → w/WWAN<br>Full power       | 0.156   | 0.116             |                  | 0.051     | 0.323                   |        |
|                                                      | 0.156   |                   | 0.141            |           | 0.297                   |        |
| Rear, WLAN 2 Tx<br>20mm → w/WWAN<br>Full power       | 0.156   | 0.116             | 0.141            |           | 0.413                   |        |

#### **14.9. Sum of the SAR for LTE Band 2 & WLAN All Band**

SAR for LTE Band 2 (Frequency Range: 1850 - 1910 MHz) is covered by LTE Band 25 (Frequency Range: 1850 - 1915 MHz) due to overlapping frequency range, same or lower maximum tune-up limit and same channel bandwidth.

#### 14.10. Sum of the SAR for LTE Band 4 & WLAN 2.4 GHz Band

| Test Position                                        | Data    |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|---------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 4   | WLAN 2.4 GHz Main | WLAN 2.4 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 1.022   | 0.014             |                  | 0.0000609 | 1.036                   |        |
|                                                      | 1.022   |                   | 0.013            |           | 1.035                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 1.022   | 0.014             | 0.013            |           | 1.049                   |        |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.265   | 0.014             |                  | 0.0000609 | 0.279                   |        |
|                                                      | 0.265   |                   | 0.013            |           | 0.278                   |        |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.265   | 0.014             | 0.013            |           | 0.292                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.00843 |                   |                  | 0.198     | 0.206                   |        |
|                                                      | 0.00843 |                   | 0.656            |           | 0.664                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.01144 |                   |                  | 0.205     | 0.216                   |        |
|                                                      | 0.01144 |                   | 0.701            |           | 0.712                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.00648 | 0.044             |                  | 0.014     | 0.064                   |        |
|                                                      | 0.00648 |                   | 0.046            |           | 0.052                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.00648 | 0.044             | 0.046            |           | 0.096                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.251   | 0.769             |                  |           | 1.020                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.197   | 0.854             |                  |           | 1.051                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.776   | 0.096             |                  | 0.051     | 0.923                   |        |
|                                                      | 0.776   |                   | 0.135            |           | 0.911                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.776   | 0.096             | 0.135            |           | 1.007                   |        |
| Rear, WLAN 1 Tx<br>21mm → w/WWAN<br>Full power       | 0.500   | 0.096             |                  | 0.051     | 0.647                   |        |
|                                                      | 0.500   |                   | 0.135            |           | 0.635                   |        |
| Rear, WLAN 2 Tx<br>21mm → w/WWAN<br>Full power       | 0.500   | 0.096             | 0.135            |           | 0.731                   |        |

#### 14.11. Sum of the SAR for LTE Band 4 & WLAN 5.2/5.3 GHz Band

| Test Position                                        | Data    |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|---------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 4   | WLAN 5.3 GHz Main | WLAN 5.3 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 1.022   | 0.049             |                  | 0.0000609 | 1.071                   |        |
|                                                      | 1.022   |                   | 0.030            |           | 1.052                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 1.022   | 0.049             | 0.030            |           | 1.101                   |        |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.265   | 0.049             |                  | 0.0000609 | 0.314                   |        |
|                                                      | 0.265   |                   | 0.030            |           | 0.295                   |        |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.265   | 0.049             | 0.030            |           | 0.344                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.00843 |                   |                  | 0.198     | 0.206                   |        |
|                                                      | 0.00843 |                   | 1.102            |           | 1.110                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.01144 |                   |                  | 0.205     | 0.216                   |        |
|                                                      | 0.01144 |                   | 1.186            |           | 1.197                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.00648 | 0.016             |                  | 0.014     | 0.037                   |        |
|                                                      | 0.00648 |                   | 0.122            |           | 0.128                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.00648 | 0.016             | 0.122            |           | 0.145                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.251   | 0.620             |                  |           | 0.871                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.197   | 0.763             |                  |           | 0.960                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.776   | 0.076             |                  | 0.051     | 0.903                   |        |
|                                                      | 0.776   |                   | 0.107            |           | 0.883                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.776   | 0.076             | 0.107            |           | 0.959                   |        |
| Rear, WLAN 1 Tx<br>21mm → w/WWAN<br>Full power       | 0.500   | 0.076             |                  | 0.051     | 0.627                   |        |
|                                                      | 0.500   |                   | 0.107            |           | 0.607                   |        |
| Rear, WLAN 2 Tx<br>21mm → w/WWAN<br>Full power       | 0.500   | 0.076             | 0.107            |           | 0.683                   |        |

## 14.12. Sum of the SAR for LTE Band 4 & WLAN 5.5 GHz Band

| Test Position                                        | Data    |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|---------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 4   | WLAN 5.5 GHz Main | WLAN 5.5 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 1.022   | 0.086             |                  | 0.0000609 | 1.108                   |        |
|                                                      | 1.022   |                   | 0.017            |           | 1.039                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 1.022   | 0.086             | 0.017            |           | 1.125                   |        |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.265   | 0.086             |                  | 0.0000609 | 0.351                   |        |
|                                                      | 0.265   |                   | 0.017            |           | 0.282                   |        |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.265   | 0.086             | 0.017            |           | 0.368                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.00843 |                   |                  | 0.198     | 0.206                   |        |
|                                                      | 0.00843 |                   | 1.012            |           | 1.020                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.01144 |                   |                  | 0.205     | 0.216                   |        |
|                                                      | 0.01144 |                   | 1.133            |           | 1.144                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.00648 | 0.000             |                  | 0.014     | 0.020                   |        |
|                                                      | 0.00648 |                   | 0.077            |           | 0.083                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.00648 | 0.000             | 0.077            |           | 0.083                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.251   | 0.609             |                  |           | 0.860                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.197   | 0.741             |                  |           | 0.938                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.776   | 0.092             |                  | 0.051     | 0.919                   |        |
|                                                      | 0.776   |                   | 0.140            |           | 0.916                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.776   | 0.092             | 0.140            |           | 1.008                   |        |
| Rear, WLAN 1 Tx<br>21mm → w/WWAN<br>Full power       | 0.500   | 0.092             |                  | 0.051     | 0.643                   |        |
|                                                      | 0.500   |                   | 0.140            |           | 0.640                   |        |
| Rear, WLAN 2 Tx<br>21mm → w/WWAN<br>Full power       | 0.500   | 0.092             | 0.140            |           | 0.732                   |        |

### 14.13. Sum of the SAR for LTE Band 4 & WLAN 5.8 GHz Band

| Test Position                                        | Data    |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|---------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 4   | WLAN 5.8 GHz Main | WLAN 5.8 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 1.022   | 0.065             |                  | 0.0000609 | 1.087                   |        |
|                                                      | 1.022   |                   | 0.013            |           | 1.035                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 1.022   | 0.065             | 0.013            |           | 1.100                   |        |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.265   | 0.065             |                  | 0.0000609 | 0.330                   |        |
|                                                      | 0.265   |                   | 0.013            |           | 0.278                   |        |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.265   | 0.065             | 0.013            |           | 0.343                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.00843 |                   |                  | 0.198     | 0.206                   |        |
|                                                      | 0.00843 |                   | 0.687            |           | 0.695                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.01144 |                   |                  | 0.205     | 0.216                   |        |
|                                                      | 0.01144 |                   | 0.972            |           | 0.983                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.00648 | 0.0000162         |                  | 0.014     | 0.020                   |        |
|                                                      | 0.00648 |                   | 0.029            |           | 0.035                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.00648 | 0.0000162         | 0.029            |           | 0.035                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.251   | 0.711             |                  |           | 0.962                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.197   | 0.831             |                  |           | 1.028                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.776   | 0.116             |                  | 0.051     | 0.943                   |        |
|                                                      | 0.776   |                   | 0.141            |           | 0.917                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.776   | 0.116             | 0.141            |           | 1.033                   |        |
| Rear, WLAN 1 Tx<br>21mm → w/WWAN<br>Full power       | 0.500   | 0.116             |                  | 0.051     | 0.667                   |        |
|                                                      | 0.500   |                   | 0.141            |           | 0.641                   |        |
| Rear, WLAN 2 Tx<br>21mm → w/WWAN<br>Full power       | 0.500   | 0.116             | 0.141            |           | 0.757                   |        |

#### 14.14. Sum of the SAR for LTE Band 5 & WLAN 2.4 GHz Band

| Test Position                                        | Data  |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|-------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 5 | WLAN 2.4 GHz Main | WLAN 2.4 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 1.005 | 0.014             |                  | 0.000609  | 1.020                   |        |
|                                                      | 1.005 |                   | 0.013            |           | 1.018                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 1.005 | 0.014             | 0.013            |           | 1.032                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.400 | 0.096             |                  | 0.051     | 0.547                   |        |
|                                                      | 0.400 |                   | 0.135            |           | 0.535                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.400 | 0.096             | 0.135            |           | 0.631                   |        |

SAR for Full Power of LTE Band 5 (Frequency Range: 824 - 849 MHz) is covered by LTE Band 26 (Frequency Range: 814 - 849 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

#### 14.15. Sum of the SAR for LTE Band 5 & WLAN 5.2/5.3 GHz Band

| Test Position                                        | Data  |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|-------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 5 | WLAN 5.3 GHz Main | WLAN 5.3 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 1.005 | 0.049             |                  | 0.0000609 | 1.054                   |        |
|                                                      | 1.005 |                   | 0.030            |           | 1.035                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 1.005 | 0.049             | 0.030            |           | 1.084                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.400 | 0.076             |                  | 0.051     | 0.527                   |        |
|                                                      | 0.400 |                   | 0.107            |           | 0.507                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.400 | 0.076             | 0.107            |           | 0.583                   |        |

SAR for Full Power of LTE Band 5 (Frequency Range: 824 - 849 MHz) is covered by LTE Band 26 (Frequency Range: 814 - 849 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

#### 14.16. Sum of the SAR for LTE Band 5 & WLAN 5.5 GHz Band

| Test Position                                        | Data  |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|-------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 5 | WLAN 5.5 GHz Main | WLAN 5.5 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 1.005 | 0.086             |                  | 0.0000609 | 1.091                   |        |
|                                                      | 1.005 |                   | 0.017            |           | 1.022                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 1.005 | 0.086             | 0.017            |           | 1.108                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.400 | 0.092             |                  | 0.051     | 0.543                   |        |
|                                                      | 0.400 |                   | 0.140            |           | 0.540                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.400 | 0.092             | 0.140            |           | 0.632                   |        |

SAR for Full Power of LTE Band 5 (Frequency Range: 824 - 849 MHz) is covered by LTE Band 26 (Frequency Range: 814 - 849 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

#### 14.17. Sum of the SAR for LTE Band 5 & WLAN 5.8 GHz Band

| Test Position                                        | Data  |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|-------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 5 | WLAN 5.8 GHz Main | WLAN 5.8 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 1.005 | 0.065             |                  | 0.0000609 | 1.070                   |        |
|                                                      | 1.005 |                   | 0.013            |           | 1.018                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 1.005 | 0.065             | 0.013            |           | 1.083                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.400 | 0.116             |                  | 0.051     | 0.567                   |        |
|                                                      | 0.400 |                   | 0.141            |           | 0.541                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.400 | 0.116             | 0.141            |           | 0.657                   |        |

SAR for Full Power of LTE Band 5 (Frequency Range: 824 - 849 MHz) is covered by LTE Band 26 (Frequency Range: 814 - 849 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

#### 14.18. Sum of the SAR for LTE Band 7 & WLAN 2.4 GHz Band

| Test Position                                        | Data  |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|-------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 7 | WLAN 2.4 GHz Main | WLAN 2.4 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.899 | 0.014             |                  | 0.0000609 | 0.913                   |        |
|                                                      | 0.899 |                   | 0.013            |           | 0.912                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.899 | 0.014             | 0.013            |           | 0.926                   |        |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.377 | 0.014             |                  | 0.0000609 | 0.391                   |        |
|                                                      | 0.377 |                   | 0.013            |           | 0.390                   |        |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.377 | 0.014             | 0.013            |           | 0.404                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.059 |                   |                  | 0.198     | 0.257                   |        |
|                                                      | 0.059 |                   | 0.656            |           | 0.715                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.033 |                   |                  | 0.205     | 0.238                   |        |
|                                                      | 0.033 |                   | 0.701            |           | 0.734                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.019 | 0.044             |                  | 0.014     | 0.077                   |        |
|                                                      | 0.019 |                   | 0.046            |           | 0.065                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.019 | 0.044             | 0.046            |           | 0.109                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.285 | 0.769             |                  |           | 1.054                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.319 | 0.854             |                  |           | 1.173                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.494 | 0.096             |                  | 0.051     | 0.641                   |        |
|                                                      | 0.494 |                   | 0.135            |           | 0.629                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.494 | 0.096             | 0.135            |           | 0.725                   |        |
| Rear, WLAN 1 Tx<br>21mm → w/WWAN<br>Full power       | 0.362 | 0.096             |                  | 0.051     | 0.509                   |        |
|                                                      | 0.362 |                   | 0.135            |           | 0.497                   |        |
| Rear, WLAN 2 Tx<br>21mm → w/WWAN<br>Full power       | 0.362 | 0.096             | 0.135            |           | 0.593                   |        |

## 14.19. Sum of the SAR for LTE Band 7 & WLAN 5.2/5.3 GHz Band

| Test Position                                        | Data  |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|-------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 7 | WLAN 5.3 GHz Main | WLAN 5.3 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.899 | 0.049             |                  | 0.0000609 | 0.948                   |        |
|                                                      | 0.899 |                   | 0.030            |           | 0.929                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.899 | 0.049             | 0.030            |           | 0.978                   |        |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.377 | 0.049             |                  | 0.0000609 | 0.426                   |        |
|                                                      | 0.377 |                   | 0.030            |           | 0.407                   |        |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.377 | 0.049             | 0.030            |           | 0.456                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.059 |                   |                  | 0.198     | 0.257                   |        |
|                                                      | 0.059 |                   | 1.102            |           | 1.161                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.033 |                   |                  | 0.205     | 0.238                   |        |
|                                                      | 0.033 |                   | 1.186            |           | 1.219                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.019 | 0.016             |                  | 0.014     | 0.049                   |        |
|                                                      | 0.019 |                   | 0.122            |           | 0.141                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.019 | 0.016             | 0.122            |           | 0.157                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.285 | 0.620             |                  |           | 0.905                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.319 | 0.763             |                  |           | 1.082                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.494 | 0.076             |                  | 0.051     | 0.621                   |        |
|                                                      | 0.494 |                   | 0.107            |           | 0.601                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.494 | 0.076             | 0.107            |           | 0.677                   |        |
| Rear, WLAN 1 Tx<br>21mm → w/WWAN<br>Full power       | 0.362 | 0.076             |                  | 0.051     | 0.489                   |        |
|                                                      | 0.362 |                   | 0.107            |           | 0.469                   |        |
| Rear, WLAN 2 Tx<br>21mm → w/WWAN<br>Full power       | 0.362 | 0.076             | 0.107            |           | 0.545                   |        |

## 14.20. Sum of the SAR for LTE Band 7 & WLAN 5.5 GHz Band

| Test Position                                        | Data  |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|-------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 7 | WLAN 5.5 GHz Main | WLAN 5.5 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.899 | 0.086             |                  | 0.0000609 | 0.985                   |        |
|                                                      | 0.899 |                   | 0.017            |           | 0.916                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.899 | 0.086             | 0.017            |           | 1.002                   |        |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.377 | 0.086             |                  | 0.0000609 | 0.463                   |        |
|                                                      | 0.377 |                   | 0.017            |           | 0.394                   |        |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.377 | 0.086             | 0.017            |           | 0.480                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.059 |                   |                  | 0.198     | 0.257                   |        |
|                                                      | 0.059 |                   | 1.012            |           | 1.071                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.033 |                   |                  | 0.205     | 0.238                   |        |
|                                                      | 0.033 |                   | 1.133            |           | 1.166                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.019 | 0.000             |                  | 0.014     | 0.033                   |        |
|                                                      | 0.019 |                   | 0.077            |           | 0.096                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.019 | 0.000             | 0.077            |           | 0.096                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.285 | 0.609             |                  |           | 0.894                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.319 | 0.741             |                  |           | 1.060                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.494 | 0.092             |                  | 0.051     | 0.637                   |        |
|                                                      | 0.494 |                   | 0.140            |           | 0.634                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.494 | 0.092             | 0.140            |           | 0.726                   |        |
| Rear, WLAN 1 Tx<br>21mm → w/WWAN<br>Full power       | 0.362 | 0.092             |                  | 0.051     | 0.505                   |        |
|                                                      | 0.362 |                   | 0.140            |           | 0.502                   |        |
| Rear, WLAN 2 Tx<br>21mm → w/WWAN<br>Full power       | 0.362 | 0.092             | 0.140            |           | 0.594                   |        |

## 14.21. Sum of the SAR for LTE Band 7 & WLAN 5.8 GHz Band

| Test Position                                        | Data  |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|-------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 7 | WLAN 5.8 GHz Main | WLAN 5.8 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.899 | 0.065             |                  | 0.0000609 | 0.964                   |        |
|                                                      | 0.899 |                   | 0.013            |           | 0.912                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.899 | 0.065             | 0.013            |           | 0.977                   |        |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.377 | 0.065             |                  | 0.0000609 | 0.442                   |        |
|                                                      | 0.377 |                   | 0.013            |           | 0.390                   |        |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.377 | 0.065             | 0.013            |           | 0.455                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.059 |                   |                  | 0.198     | 0.257                   |        |
|                                                      | 0.059 |                   | 0.687            |           | 0.746                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.033 |                   |                  | 0.205     | 0.238                   |        |
|                                                      | 0.033 |                   | 0.972            |           | 1.005                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.019 | 0.0000162         |                  | 0.014     | 0.033                   |        |
|                                                      | 0.019 |                   | 0.029            |           | 0.048                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.019 | 0.0000162         | 0.029            |           | 0.048                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.285 | 0.711             |                  |           | 0.996                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.319 | 0.831             |                  |           | 1.150                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.494 | 0.116             |                  | 0.051     | 0.661                   |        |
|                                                      | 0.494 |                   | 0.141            |           | 0.635                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.494 | 0.116             | 0.141            |           | 0.751                   |        |
| Rear, WLAN 1 Tx<br>21mm → w/WWAN<br>Full power       | 0.362 | 0.116             |                  | 0.051     | 0.529                   |        |
|                                                      | 0.362 |                   | 0.141            |           | 0.503                   |        |
| Rear, WLAN 2 Tx<br>21mm → w/WWAN<br>Full power       | 0.362 | 0.116             | 0.141            |           | 0.619                   |        |

## 14.22. Sum of the SAR for LTE Band 12, 13 & WLAN 2.4 GHz Band

| Test Position                                        | Data    |        |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|---------|--------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 12  | LTE 13 | WLAN 2.4 GHz Main | WLAN 2.4 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 1.021   |        | 0.014             |                  | 0.0000609 | 1.035                   |        |
|                                                      |         | 1.086  | 0.014             |                  | 0.0000609 | 1.100                   |        |
|                                                      | 1.021   |        |                   | 0.013            |           | 1.034                   |        |
|                                                      |         | 1.086  |                   | 0.013            |           | 1.099                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 1.021   |        | 0.014             | 0.013            |           | 1.048                   |        |
|                                                      |         | 1.086  | 0.014             | 0.013            |           | 1.113                   |        |
| Edge 1, WLAN 1 Tx<br>37mm → w/WWAN<br>Full power     | 0.038   |        | 0.014             |                  | 0.0000609 | 0.052                   |        |
|                                                      |         | 0.174  | 0.014             |                  | 0.0000609 | 0.188                   |        |
|                                                      | 0.038   |        |                   | 0.013            |           | 0.051                   |        |
|                                                      |         | 0.174  |                   | 0.013            |           | 0.187                   |        |
| Edge 1, WLAN 2 Tx<br>37mm → w/WWAN<br>Full power     | 0.038   |        | 0.014             | 0.013            |           | 0.065                   |        |
|                                                      |         | 0.174  | 0.014             | 0.013            |           | 0.201                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.014   |        |                   |                  | 0.198     | 0.212                   |        |
|                                                      |         | 0.020  |                   |                  | 0.198     | 0.218                   |        |
|                                                      | 0.014   |        |                   | 0.656            |           | 0.670                   |        |
|                                                      |         | 0.020  |                   | 0.656            |           | 0.676                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.01114 |        |                   |                  | 0.205     | 0.216                   |        |
|                                                      |         | 0.028  |                   |                  | 0.205     | 0.233                   |        |
|                                                      | 0.01114 |        |                   | 0.701            |           | 0.712                   |        |
|                                                      |         | 0.028  |                   | 0.701            |           | 0.729                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.024   |        | 0.044             |                  | 0.014     | 0.082                   |        |
|                                                      |         | 0.082  | 0.044             |                  | 0.014     | 0.140                   |        |
|                                                      | 0.024   |        |                   | 0.046            |           | 0.070                   |        |
|                                                      |         | 0.082  |                   | 0.046            |           | 0.128                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.024   |        | 0.044             | 0.046            |           | 0.114                   |        |
|                                                      |         | 0.082  | 0.044             | 0.046            |           | 0.172                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.162   |        | 0.769             |                  |           | 0.931                   |        |
|                                                      |         | 0.357  | 0.769             |                  |           | 1.126                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.158   |        | 0.854             |                  |           | 1.012                   |        |
|                                                      |         | 0.422  | 0.854             |                  |           | 1.276                   |        |
|                                                      | 0.503   |        | 0.096             |                  | 0.051     | 0.650                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   |         | 0.547  | 0.096             |                  | 0.051     | 0.694                   |        |
|                                                      | 0.503   |        |                   | 0.135            |           | 0.638                   |        |
|                                                      |         | 0.547  |                   | 0.135            |           | 0.682                   |        |
|                                                      | 0.503   |        | 0.096             | 0.135            |           | 0.734                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   |         | 0.547  | 0.096             | 0.135            |           | 0.778                   |        |
|                                                      | 0.087   |        | 0.096             |                  | 0.051     | 0.234                   |        |
|                                                      |         | 0.261  | 0.096             |                  | 0.051     | 0.408                   |        |
|                                                      | 0.087   |        |                   | 0.135            |           | 0.222                   |        |
| Rear, WLAN 1 Tx<br>20mm → w/WWAN<br>Full power       |         | 0.261  |                   | 0.135            |           | 0.396                   |        |
|                                                      | 0.087   |        | 0.096             | 0.135            |           | 0.318                   |        |
|                                                      |         | 0.261  | 0.096             | 0.135            |           | 0.492                   |        |

### 14.23. Sum of the SAR for LTE Band 12, 13 & WLAN 5.2/5.3 GHz Band

| Test Position                                        | Data    |        |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|---------|--------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 12  | LTE 13 | WLAN 5.3 GHz Main | WLAN 5.3 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 1.021   |        | 0.049             |                  | 0.0000609 | 1.070                   |        |
|                                                      |         | 1.086  | 0.049             |                  | 0.0000609 | 1.135                   |        |
|                                                      | 1.021   |        |                   | 0.030            |           | 1.051                   |        |
|                                                      |         | 1.086  |                   | 0.030            |           | 1.116                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 1.021   |        | 0.049             | 0.030            |           | 1.100                   |        |
|                                                      |         | 1.086  | 0.049             | 0.030            |           | 1.165                   |        |
| Edge 1, WLAN 1 Tx<br>37mm → w/WWAN<br>Full power     | 0.038   |        | 0.049             |                  | 0.0000609 | 0.087                   |        |
|                                                      |         | 0.174  | 0.049             |                  | 0.0000609 | 0.223                   |        |
|                                                      | 0.038   |        |                   | 0.030            |           | 0.068                   |        |
|                                                      |         | 0.174  |                   | 0.030            |           | 0.204                   |        |
| Edge 1, WLAN 2 Tx<br>37mm → w/WWAN<br>Full power     | 0.038   |        | 0.049             | 0.030            |           | 0.117                   |        |
|                                                      |         | 0.174  | 0.049             | 0.030            |           | 0.253                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.014   |        |                   |                  | 0.198     | 0.212                   |        |
|                                                      |         | 0.020  |                   |                  | 0.198     | 0.218                   |        |
|                                                      | 0.014   |        |                   | 1.102            |           | 1.116                   |        |
|                                                      |         | 0.020  |                   | 1.102            |           | 1.122                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.01114 |        |                   |                  | 0.205     | 0.216                   |        |
|                                                      |         | 0.028  |                   |                  | 0.205     | 0.233                   |        |
|                                                      | 0.01114 |        |                   | 1.186            |           | 1.197                   |        |
|                                                      |         | 0.028  |                   | 1.186            |           | 1.214                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.024   |        | 0.016             |                  | 0.014     | 0.054                   |        |
|                                                      |         | 0.082  | 0.016             |                  | 0.014     | 0.112                   |        |
|                                                      | 0.024   |        |                   | 0.122            |           | 0.146                   |        |
|                                                      |         | 0.082  |                   | 0.122            |           | 0.204                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.024   |        | 0.016             | 0.122            |           | 0.162                   |        |
|                                                      |         | 0.082  | 0.016             | 0.122            |           | 0.220                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.162   |        | 0.620             |                  |           | 0.782                   |        |
|                                                      |         | 0.357  | 0.620             |                  |           | 0.977                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.158   |        | 0.763             |                  |           | 0.921                   |        |
|                                                      |         | 0.422  | 0.763             |                  |           | 1.185                   |        |
|                                                      | 0.503   |        | 0.076             |                  | 0.051     | 0.630                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   |         | 0.547  | 0.076             |                  | 0.051     | 0.674                   |        |
|                                                      | 0.503   |        |                   | 0.107            |           | 0.610                   |        |
|                                                      |         | 0.547  |                   | 0.107            |           | 0.654                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.503   |        | 0.076             | 0.107            |           | 0.686                   |        |
|                                                      |         | 0.547  | 0.076             | 0.107            |           | 0.730                   |        |
| Rear, WLAN 1 Tx<br>20mm → w/WWAN<br>Full power       | 0.087   |        | 0.076             |                  | 0.051     | 0.214                   |        |
|                                                      |         | 0.261  | 0.076             |                  | 0.051     | 0.388                   |        |
|                                                      | 0.087   |        |                   | 0.107            |           | 0.194                   |        |
|                                                      |         | 0.261  |                   | 0.107            |           | 0.368                   |        |
| Rear, WLAN 2 Tx<br>20mm → w/WWAN<br>Full power       | 0.087   |        | 0.076             | 0.107            |           | 0.270                   |        |
|                                                      |         | 0.261  | 0.076             | 0.107            |           | 0.444                   |        |

#### 14.24. Sum of the SAR for LTE Band 12, 13 & WLAN 5.5 GHz Band

| Test Position                                        | Data    |        |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|---------|--------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 12  | LTE 13 | WLAN 5.5 GHz Main | WLAN 5.5 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 1.021   |        | 0.086             |                  | 0.0000609 | 1.107                   |        |
|                                                      |         | 1.086  | 0.086             |                  | 0.0000609 | 1.172                   |        |
|                                                      | 1.021   |        |                   | 0.017            |           | 1.038                   |        |
|                                                      |         | 1.086  |                   | 0.017            |           | 1.103                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 1.021   |        | 0.086             | 0.017            |           | 1.124                   |        |
|                                                      |         | 1.086  | 0.086             | 0.017            |           | 1.189                   |        |
| Edge 1, WLAN 1 Tx<br>37mm → w/WWAN<br>Full power     | 0.038   |        | 0.086             |                  | 0.0000609 | 0.124                   |        |
|                                                      |         | 0.174  | 0.086             |                  | 0.0000609 | 0.260                   |        |
|                                                      | 0.038   |        |                   | 0.017            |           | 0.055                   |        |
|                                                      |         | 0.174  |                   | 0.017            |           | 0.191                   |        |
| Edge 1, WLAN 2 Tx<br>37mm → w/WWAN<br>Full power     | 0.038   |        | 0.086             | 0.017            |           | 0.141                   |        |
|                                                      |         | 0.174  | 0.086             | 0.017            |           | 0.277                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.014   |        |                   |                  | 0.198     | 0.212                   |        |
|                                                      |         | 0.020  |                   |                  | 0.198     | 0.218                   |        |
|                                                      | 0.014   |        |                   | 1.012            |           | 1.026                   |        |
|                                                      |         | 0.020  |                   | 1.012            |           | 1.032                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.01114 |        |                   |                  | 0.205     | 0.216                   |        |
|                                                      |         | 0.028  |                   |                  | 0.205     | 0.233                   |        |
|                                                      | 0.01114 |        |                   | 1.133            |           | 1.144                   |        |
|                                                      |         | 0.028  |                   | 1.133            |           | 1.161                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.024   |        | 0.000             |                  | 0.014     | 0.038                   |        |
|                                                      |         | 0.082  | 0.000             |                  | 0.014     | 0.096                   |        |
|                                                      | 0.024   |        |                   | 0.077            |           | 0.101                   |        |
|                                                      |         | 0.082  |                   | 0.077            |           | 0.159                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.024   |        | 0.000             | 0.077            |           | 0.101                   |        |
|                                                      |         | 0.082  | 0.000             | 0.077            |           | 0.159                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.162   |        | 0.609             |                  |           | 0.771                   |        |
|                                                      |         | 0.357  | 0.609             |                  |           | 0.966                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.158   |        | 0.741             |                  |           | 0.899                   |        |
|                                                      |         | 0.422  | 0.741             |                  |           | 1.163                   |        |
|                                                      |         |        |                   |                  |           |                         |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.503   |        | 0.092             |                  | 0.051     | 0.646                   |        |
|                                                      |         | 0.547  | 0.092             |                  | 0.051     | 0.690                   |        |
|                                                      | 0.503   |        |                   | 0.140            |           | 0.643                   |        |
|                                                      |         | 0.547  |                   | 0.140            |           | 0.687                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.503   |        | 0.092             | 0.140            |           | 0.735                   |        |
|                                                      |         | 0.547  | 0.092             | 0.140            |           | 0.779                   |        |
| Rear, WLAN 1 Tx<br>20mm → w/WWAN<br>Full power       | 0.087   |        | 0.092             |                  | 0.051     | 0.230                   |        |
|                                                      |         | 0.261  | 0.092             |                  | 0.051     | 0.404                   |        |
|                                                      | 0.087   |        |                   | 0.140            |           | 0.227                   |        |
|                                                      |         | 0.261  |                   | 0.140            |           | 0.401                   |        |
| Rear, WLAN 2 Tx<br>20mm → w/WWAN<br>Full power       | 0.087   |        | 0.092             | 0.140            |           | 0.319                   |        |
|                                                      |         | 0.261  | 0.092             | 0.140            |           | 0.493                   |        |

## 14.25. Sum of the SAR for LTE Band 12, 13 & WLAN 5.8 GHz Band

| Test Position                                        | Data    |        |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|---------|--------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 12  | LTE 13 | WLAN 5.8 GHz Main | WLAN 5.8 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 1.021   |        | 0.065             |                  | 0.0000609 | 1.086                   |        |
|                                                      |         | 1.086  | 0.065             |                  | 0.0000609 | 1.151                   |        |
|                                                      | 1.021   |        |                   | 0.013            |           | 1.034                   |        |
|                                                      |         | 1.086  |                   | 0.013            |           | 1.099                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 1.021   |        | 0.065             | 0.013            |           | 1.099                   |        |
|                                                      |         | 1.086  | 0.065             | 0.013            |           | 1.164                   |        |
| Edge 1, WLAN 1 Tx<br>37mm → w/WWAN<br>Full power     | 0.038   |        | 0.065             |                  | 0.0000609 | 0.103                   |        |
|                                                      |         | 0.174  | 0.065             |                  | 0.0000609 | 0.239                   |        |
|                                                      | 0.038   |        |                   | 0.013            |           | 0.051                   |        |
|                                                      |         | 0.174  |                   | 0.013            |           | 0.187                   |        |
| Edge 1, WLAN 2 Tx<br>37mm → w/WWAN<br>Full power     | 0.038   |        | 0.065             | 0.013            |           | 0.116                   |        |
|                                                      |         | 0.174  | 0.065             | 0.013            |           | 0.252                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.014   |        |                   |                  | 0.198     | 0.212                   |        |
|                                                      |         | 0.020  |                   |                  | 0.198     | 0.218                   |        |
|                                                      | 0.014   |        |                   | 0.687            |           | 0.701                   |        |
|                                                      |         | 0.020  |                   | 0.687            |           | 0.707                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.01114 |        |                   |                  | 0.205     | 0.216                   |        |
|                                                      |         | 0.028  |                   |                  | 0.205     | 0.233                   |        |
|                                                      | 0.01114 |        |                   | 0.972            |           | 0.983                   |        |
|                                                      |         | 0.028  |                   | 0.972            |           | 1.000                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.024   |        | 0.0000162         |                  | 0.014     | 0.038                   |        |
|                                                      |         | 0.082  | 0.0000162         |                  | 0.014     | 0.096                   |        |
|                                                      | 0.024   |        |                   | 0.029            |           | 0.053                   |        |
|                                                      |         | 0.082  |                   | 0.029            |           | 0.111                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.024   |        | 0.0000162         | 0.029            |           | 0.053                   |        |
|                                                      |         | 0.082  | 0.0000162         | 0.029            |           | 0.111                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.162   |        | 0.711             |                  |           | 0.873                   |        |
|                                                      |         | 0.357  | 0.711             |                  |           | 1.068                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.158   |        | 0.831             |                  |           | 0.989                   |        |
|                                                      |         | 0.422  | 0.831             |                  |           | 1.253                   |        |
|                                                      |         |        |                   |                  |           |                         |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.503   |        | 0.116             |                  | 0.051     | 0.670                   |        |
|                                                      |         | 0.547  | 0.116             |                  | 0.051     | 0.714                   |        |
|                                                      | 0.503   |        |                   | 0.141            |           | 0.644                   |        |
|                                                      |         | 0.547  |                   | 0.141            |           | 0.688                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.503   |        | 0.116             | 0.141            |           | 0.760                   |        |
|                                                      |         | 0.547  | 0.116             | 0.141            |           | 0.804                   |        |
| Rear, WLAN 1 Tx<br>20mm → w/WWAN<br>Full power       | 0.087   |        | 0.116             |                  | 0.051     | 0.254                   |        |
|                                                      |         | 0.261  | 0.116             |                  | 0.051     | 0.428                   |        |
|                                                      | 0.087   |        |                   | 0.141            |           | 0.228                   |        |
|                                                      |         | 0.261  |                   | 0.141            |           | 0.402                   |        |
| Rear, WLAN 2 Tx<br>20mm → w/WWAN<br>Full power       | 0.087   |        | 0.116             | 0.141            |           | 0.344                   |        |
|                                                      |         | 0.261  | 0.116             | 0.141            |           | 0.518                   |        |

## 14.26. Sum of the SAR for LTE Band 25 & WLAN 2.4 GHz Band

| Test Position                                        | Data    |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark     |
|------------------------------------------------------|---------|-------------------|------------------|-----------|-------------------------|------------|
|                                                      | LTE 25  | WLAN 2.4 GHz Main | WLAN 2.4 GHz Aux | Bluetooth |                         |            |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.965   | 0.014             |                  | 0.0000609 | 0.979                   |            |
|                                                      | 0.965   |                   | 0.013            |           | 0.978                   |            |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.965   | 0.014             | 0.013            |           | 0.992                   |            |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.151   | 0.014             |                  | 0.0000609 | 0.165                   |            |
|                                                      | 0.151   |                   | 0.013            |           | 0.164                   |            |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.151   | 0.014             | 0.013            |           | 0.178                   |            |
| Edge 2, WLAN 1 Tx                                    | 0.022   |                   |                  | 0.198     | 0.220                   |            |
|                                                      | 0.022   |                   | 0.656            |           | 0.678                   |            |
| Edge 2 tilt, WLAN 1 Tx                               | 0.00733 |                   |                  | 0.205     | 0.212                   |            |
|                                                      | 0.00733 |                   | 0.701            |           | 0.708                   |            |
| Edge 3, WLAN 1 Tx                                    | 0.059   | 0.044             |                  | 0.014     | 0.117                   |            |
|                                                      | 0.059   |                   | 0.046            |           | 0.105                   |            |
| Edge 3, WLAN 2 Tx                                    | 0.059   | 0.044             | 0.046            |           | 0.149                   |            |
| Edge 4, WLAN 1 Tx                                    | 0.962   | 0.769             |                  |           | 1.731                   | Table 26-1 |
| Edge 4 tilt, WLAN 1 Tx                               | 0.995   | 0.854             |                  |           | 1.849                   | Table 26-2 |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.707   | 0.096             |                  | 0.051     | 0.854                   |            |
|                                                      | 0.707   |                   | 0.135            |           | 0.842                   |            |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.707   | 0.096             | 0.135            |           | 0.938                   |            |
| Rear, WLAN 1 Tx<br>20mm → w/WWAN<br>Full power       | 0.392   | 0.096             |                  | 0.051     | 0.539                   |            |
|                                                      | 0.392   |                   | 0.135            |           | 0.527                   |            |
| Rear, WLAN 2 Tx<br>20mm → w/WWAN<br>Full power       | 0.392   | 0.096             | 0.135            |           | 0.623                   |            |

## SAR to Peak Location Separation Ratio (SPLSR)

**Table 26-1**

| Test Position     | ①<br>LTE<br>Band25 | ②<br>WLAN<br>2.4GHz<br>(Main Ant) | ③<br>WLAN<br>2.4GHz<br>(Aux Ant) | ④<br>BT<br>(Aux Ant) | Σ 1-g SAR<br>(mW/g) |       | Calculated<br>distance<br>(mm) | SPLSR<br>(≤ 0.04) | Volume<br>Scan<br>(Yes/ No) | Figure |
|-------------------|--------------------|-----------------------------------|----------------------------------|----------------------|---------------------|-------|--------------------------------|-------------------|-----------------------------|--------|
| Edge 4, WLAN 1 Tx | 0.962              | 0.769                             |                                  |                      | ① + ②               | 1.731 | 174.5                          | 0.013             | No                          | X7     |

**Table 26-2**

| Test Position             | ①<br>LTE<br>Band25 | ②<br>WLAN<br>2.4GHz<br>(Main Ant) | ③<br>WLAN<br>2.4GHz<br>(Aux Ant) | ④<br>BT<br>(Aux Ant) | Σ 1-g SAR<br>(mW/g) |       | Calculated<br>distance<br>(mm) | SPLSR<br>(≤ 0.04) | Volume<br>Scan<br>(Yes/ No) | Figure |
|---------------------------|--------------------|-----------------------------------|----------------------------------|----------------------|---------------------|-------|--------------------------------|-------------------|-----------------------------|--------|
| Edge 4 tilt,<br>WLAN 1 Tx | 0.995              | 0.854                             |                                  |                      | ① + ②               | 1.849 | 170.2                          | 0.015             | No                          | X8     |

### Conclusion:

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

## 14.27. Sum of the SAR for LTE Band 25 & WLAN 5.2/5.3 GHz Band

| Test Position                                        | Data    |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark     |
|------------------------------------------------------|---------|-------------------|------------------|-----------|-------------------------|------------|
|                                                      | LTE 25  | WLAN 5.3 GHz Main | WLAN 5.3 GHz Aux | Bluetooth |                         |            |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.965   | 0.049             |                  | 0.0000609 | 1.014                   |            |
|                                                      | 0.965   |                   | 0.030            |           | 0.995                   |            |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.965   | 0.049             | 0.030            |           | 1.044                   |            |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.151   | 0.049             |                  | 0.0000609 | 0.200                   |            |
|                                                      | 0.151   |                   | 0.030            |           | 0.181                   |            |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.151   | 0.049             | 0.030            |           | 0.230                   |            |
| Edge 2, WLAN 1 Tx                                    | 0.022   |                   |                  | 0.198     | 0.220                   |            |
|                                                      | 0.022   |                   | 1.102            |           | 1.124                   |            |
| Edge 2 tilt, WLAN 1 Tx                               | 0.00733 |                   |                  | 0.205     | 0.212                   |            |
|                                                      | 0.00733 |                   | 1.186            |           | 1.193                   |            |
| Edge 3, WLAN 1 Tx                                    | 0.059   | 0.016             |                  | 0.014     | 0.089                   |            |
|                                                      | 0.059   |                   | 0.122            |           | 0.181                   |            |
| Edge 3, WLAN 2 Tx                                    | 0.059   | 0.016             | 0.122            |           | 0.197                   |            |
| Edge 4, WLAN 1 Tx                                    | 0.962   | 0.620             |                  |           | 1.582                   |            |
| Edge 4 tilt, WLAN 1 Tx                               | 0.995   | 0.763             |                  |           | 1.758                   | Table 27-1 |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.707   | 0.076             |                  | 0.051     | 0.834                   |            |
|                                                      | 0.707   |                   | 0.107            |           | 0.814                   |            |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.707   | 0.076             | 0.107            |           | 0.890                   |            |
| Rear, WLAN 1 Tx<br>20mm → w/WWAN<br>Full power       | 0.392   | 0.076             |                  | 0.051     | 0.519                   |            |
|                                                      | 0.392   |                   | 0.107            |           | 0.499                   |            |
| Rear, WLAN 2 Tx<br>20mm → w/WWAN<br>Full power       | 0.392   | 0.076             | 0.107            |           | 0.575                   |            |

## SAR to Peak Location Separation Ratio (SPLSR)

**Table 27-1**

| Test Position             | ①<br>LTE<br>Band25 | ②<br>WLAN<br>5.3GHz<br>(Main Ant) | ③<br>WLAN<br>5.3GHz<br>(Aux Ant) | ④<br>BT<br>(Aux Ant) | Σ 1-g SAR<br>(mW/g) |       | Calculated<br>distance<br>(mm) | SPLSR<br>(≤ 0.04) | Volume<br>Scan<br>(Yes/ No) | Figure |
|---------------------------|--------------------|-----------------------------------|----------------------------------|----------------------|---------------------|-------|--------------------------------|-------------------|-----------------------------|--------|
| Edge 4 tilt,<br>WLAN 1 Tx | 0.995              | 0.763                             |                                  |                      | ① + ②               | 1.758 | 166.1                          | 0.014             | No                          | X9     |

### **Conclusion:**

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

## 14.28. Sum of the SAR for LTE Band 25 & WLAN 5.5 GHz Band

| Test Position                                        | Data    |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark     |
|------------------------------------------------------|---------|-------------------|------------------|-----------|-------------------------|------------|
|                                                      | LTE 25  | WLAN 5.5 GHz Main | WLAN 5.5 GHz Aux | Bluetooth |                         |            |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.965   | 0.086             |                  | 0.0000609 | 1.051                   |            |
|                                                      | 0.965   |                   | 0.017            |           | 0.982                   |            |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.965   | 0.086             | 0.017            |           | 1.068                   |            |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.151   | 0.086             |                  | 0.0000609 | 0.237                   |            |
|                                                      | 0.151   |                   | 0.017            |           | 0.168                   |            |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.151   | 0.086             | 0.017            |           | 0.254                   |            |
| Edge 2, WLAN 1 Tx                                    | 0.022   |                   |                  | 0.198     | 0.220                   |            |
|                                                      | 0.022   |                   | 1.012            |           | 1.034                   |            |
| Edge 2 tilt, WLAN 1 Tx                               | 0.00733 |                   |                  | 0.205     | 0.212                   |            |
|                                                      | 0.00733 |                   | 1.133            |           | 1.140                   |            |
| Edge 3, WLAN 1 Tx                                    | 0.059   | 0.000             |                  | 0.014     | 0.073                   |            |
|                                                      | 0.059   |                   | 0.077            |           | 0.136                   |            |
| Edge 3, WLAN 2 Tx                                    | 0.059   | 0.000             | 0.077            |           | 0.136                   |            |
| Edge 4, WLAN 1 Tx                                    | 0.962   | 0.609             |                  |           | 1.571                   |            |
| Edge 4 tilt, WLAN 1 Tx                               | 0.995   | 0.741             |                  |           | 1.736                   | Table 28-1 |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.707   | 0.092             |                  | 0.051     | 0.850                   |            |
|                                                      | 0.707   |                   | 0.140            |           | 0.847                   |            |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.707   | 0.092             | 0.140            |           | 0.939                   |            |
| Rear, WLAN 1 Tx<br>20mm → w/WWAN<br>Full power       | 0.392   | 0.092             |                  | 0.051     | 0.535                   |            |
|                                                      | 0.392   |                   | 0.140            |           | 0.532                   |            |
| Rear, WLAN 2 Tx<br>20mm → w/WWAN<br>Full power       | 0.392   | 0.092             | 0.140            |           | 0.624                   |            |

## SAR to Peak Location Separation Ratio (SPLSR)

**Table 28-1**

| Test Position             | ①<br>LTE<br>Band25 | ②<br>WLAN<br>5.5GHz<br>(Main Ant) | ③<br>WLAN<br>5.5GHz<br>(Aux Ant) | ④<br>BT<br>(Aux Ant) | Σ 1-g SAR<br>(mW/g) |       | Calculated<br>distance<br>(mm) | SPLSR<br>(≤ 0.04) | Volume<br>Scan<br>(Yes/ No) | Figure |
|---------------------------|--------------------|-----------------------------------|----------------------------------|----------------------|---------------------|-------|--------------------------------|-------------------|-----------------------------|--------|
| Edge 4 tilt,<br>WLAN 1 Tx | 0.995              | 0.741                             |                                  |                      | ① + ②               | 1.736 | 163.1                          | 0.014             | No                          | X10    |

### **Conclusion:**

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

## 14.29. Sum of the SAR for LTE Band 25 & WLAN 5.8 GHz Band

| Test Position                                        | Data    |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark     |
|------------------------------------------------------|---------|-------------------|------------------|-----------|-------------------------|------------|
|                                                      | LTE 25  | WLAN 5.8 GHz Main | WLAN 5.8 GHz Aux | Bluetooth |                         |            |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.965   | 0.065             |                  | 0.0000609 | 1.030                   |            |
|                                                      | 0.965   |                   | 0.013            |           | 0.978                   |            |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.965   | 0.065             | 0.013            |           | 1.043                   |            |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.151   | 0.065             |                  | 0.0000609 | 0.216                   |            |
|                                                      | 0.151   |                   | 0.013            |           | 0.164                   |            |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.151   | 0.065             | 0.013            |           | 0.229                   |            |
| Edge 2, WLAN 1 Tx                                    | 0.022   |                   |                  | 0.198     | 0.220                   |            |
|                                                      | 0.022   |                   | 0.687            |           | 0.709                   |            |
| Edge 2 tilt, WLAN 1 Tx                               | 0.00733 |                   |                  | 0.205     | 0.212                   |            |
|                                                      | 0.00733 |                   | 0.972            |           | 0.979                   |            |
| Edge 3, WLAN 1 Tx                                    | 0.059   | 0.0000162         |                  | 0.014     | 0.073                   |            |
|                                                      | 0.059   |                   | 0.029            |           | 0.088                   |            |
| Edge 3, WLAN 2 Tx                                    | 0.059   | 0.0000162         | 0.029            |           | 0.088                   |            |
| Edge 4, WLAN 1 Tx                                    | 0.962   | 0.711             |                  |           | 1.673                   | Table 29-1 |
| Edge 4 tilt, WLAN 1 Tx                               | 0.995   | 0.831             |                  |           | 1.826                   | Table 29-2 |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.707   | 0.116             |                  | 0.051     | 0.874                   |            |
|                                                      | 0.707   |                   | 0.141            |           | 0.848                   |            |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.707   | 0.116             | 0.141            |           | 0.964                   |            |
| Rear, WLAN 1 Tx<br>20mm → w/WWAN<br>Full power       | 0.392   | 0.116             |                  | 0.051     | 0.559                   |            |
|                                                      | 0.392   |                   | 0.141            |           | 0.533                   |            |
| Rear, WLAN 2 Tx<br>20mm → w/WWAN<br>Full power       | 0.392   | 0.116             | 0.141            |           | 0.649                   |            |

## SAR to Peak Location Separation Ratio (SPLSR)

**Table 29-1**

| Test Position     | ①<br>LTE<br>Band25 | ②<br>WLAN<br>5.8GHz<br>(Main Ant) | ③<br>WLAN<br>5.8GHz<br>(Aux Ant) | ④<br>BT<br>(Aux Ant) | $\Sigma$ 1-g SAR<br>(mW/g) |       | Calculated<br>distance<br>(mm) | SPLSR<br>( $\leq 0.04$ ) | Volume<br>Scan<br>(Yes/ No) | Figure |
|-------------------|--------------------|-----------------------------------|----------------------------------|----------------------|----------------------------|-------|--------------------------------|--------------------------|-----------------------------|--------|
| Edge 4, WLAN 1 Tx | 0.962              | 0.711                             |                                  |                      | ① + ②                      | 1.673 | 152.0                          | 0.014                    | No                          | X11    |

**Table 29-2**

| Test Position             | ①<br>LTE<br>Band25 | ②<br>WLAN<br>5.8GHz<br>(Main Ant) | ③<br>WLAN<br>5.8GHz<br>(Aux Ant) | ④<br>BT<br>(Aux Ant) | $\Sigma$ 1-g SAR<br>(mW/g) |       | Calculated<br>distance<br>(mm) | SPLSR<br>( $\leq 0.04$ ) | Volume<br>Scan<br>(Yes/ No) | Figure |
|---------------------------|--------------------|-----------------------------------|----------------------------------|----------------------|----------------------------|-------|--------------------------------|--------------------------|-----------------------------|--------|
| Edge 4 tilt,<br>WLAN 1 Tx | 0.995              | 0.831                             |                                  |                      | ① + ②                      | 1.826 | 158.2                          | 0.016                    | No                          | X12    |

### Conclusion:

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

### 14.30. Sum of the SAR for LTE Band 26 & WLAN 2.4 GHz Band

| Test Position                                        | Data   |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|--------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 26 | WLAN 2.4 GHz Main | WLAN 2.4 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.919  | 0.014             |                  | 0.0000609 | 0.933                   |        |
|                                                      | 0.919  |                   | 0.013            |           | 0.932                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.919  | 0.014             | 0.013            |           | 0.946                   |        |
| Edge 1, WLAN 1 Tx<br>37mm → w/WWAN<br>Full power     | 0.177  | 0.014             |                  | 0.0000609 | 0.191                   |        |
|                                                      | 0.177  |                   | 0.013            |           | 0.190                   |        |
| Edge 1, WLAN 2 Tx<br>37mm → w/WWAN<br>Full power     | 0.177  | 0.014             | 0.013            |           | 0.204                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.013  |                   |                  | 0.198     | 0.211                   |        |
|                                                      | 0.013  |                   | 0.656            |           | 0.669                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.020  |                   |                  | 0.205     | 0.225                   |        |
|                                                      | 0.020  |                   | 0.701            |           | 0.721                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.056  | 0.044             |                  | 0.014     | 0.114                   |        |
|                                                      | 0.056  |                   | 0.046            |           | 0.102                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.056  | 0.044             | 0.046            |           | 0.146                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.306  | 0.769             |                  |           | 1.075                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.372  | 0.854             |                  |           | 1.226                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.376  | 0.096             |                  | 0.051     | 0.523                   |        |
|                                                      | 0.376  |                   | 0.135            |           | 0.511                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.376  | 0.096             | 0.135            |           | 0.607                   |        |
| Rear, WLAN 1 Tx<br>20mm → w/WWAN<br>Full power       | 0.241  | 0.096             |                  | 0.051     | 0.388                   |        |
|                                                      | 0.241  |                   | 0.135            |           | 0.376                   |        |
| Rear, WLAN 2 Tx<br>20mm → w/WWAN<br>Full power       | 0.241  | 0.096             | 0.135            |           | 0.472                   |        |

### 14.31. Sum of the SAR for LTE Band 26 & WLAN 5.2/5.3 GHz Band

| Test Position                                        | Data   |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|--------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 26 | WLAN 5.3 GHz Main | WLAN 5.3 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.919  | 0.049             |                  | 0.0000609 | 0.968                   |        |
|                                                      | 0.919  |                   | 0.030            |           | 0.949                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.919  | 0.049             | 0.030            |           | 0.998                   |        |
| Edge 1, WLAN 1 Tx<br>37mm → w/WWAN<br>Full power     | 0.177  | 0.049             |                  | 0.0000609 | 0.226                   |        |
|                                                      | 0.177  |                   | 0.030            |           | 0.207                   |        |
| Edge 1, WLAN 2 Tx<br>37mm → w/WWAN<br>Full power     | 0.177  | 0.049             | 0.030            |           | 0.256                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.013  |                   |                  | 0.198     | 0.211                   |        |
|                                                      | 0.013  |                   | 1.102            |           | 1.115                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.020  |                   |                  | 0.205     | 0.225                   |        |
|                                                      | 0.020  |                   | 1.186            |           | 1.206                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.056  | 0.016             |                  | 0.014     | 0.086                   |        |
|                                                      | 0.056  |                   | 0.122            |           | 0.178                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.056  | 0.016             | 0.122            |           | 0.194                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.306  | 0.620             |                  |           | 0.926                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.372  | 0.763             |                  |           | 1.135                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.376  | 0.076             |                  | 0.051     | 0.503                   |        |
|                                                      | 0.376  |                   | 0.107            |           | 0.483                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.376  | 0.076             | 0.107            |           | 0.559                   |        |
| Rear, WLAN 1 Tx<br>20mm → w/WWAN<br>Full power       | 0.241  | 0.076             |                  | 0.051     | 0.368                   |        |
|                                                      | 0.241  |                   | 0.107            |           | 0.348                   |        |
| Rear, WLAN 2 Tx<br>20mm → w/WWAN<br>Full power       | 0.241  | 0.076             | 0.107            |           | 0.424                   |        |

## 14.32. Sum of the SAR for LTE Band 26 & WLAN 5.5 GHz Band

| Test Position                                        | Data   |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|--------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 26 | WLAN 5.5 GHz Main | WLAN 5.5 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.919  | 0.086             |                  | 0.0000609 | 1.005                   |        |
|                                                      | 0.919  |                   | 0.017            |           | 0.936                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.919  | 0.086             | 0.017            |           | 1.022                   |        |
| Edge 1, WLAN 1 Tx<br>37mm → w/WWAN<br>Full power     | 0.177  | 0.086             |                  | 0.0000609 | 0.263                   |        |
|                                                      | 0.177  |                   | 0.017            |           | 0.194                   |        |
| Edge 1, WLAN 2 Tx<br>37mm → w/WWAN<br>Full power     | 0.177  | 0.086             | 0.017            |           | 0.280                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.013  |                   |                  | 0.198     | 0.211                   |        |
|                                                      | 0.013  |                   | 1.012            |           | 1.025                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.020  |                   |                  | 0.205     | 0.225                   |        |
|                                                      | 0.020  |                   | 1.133            |           | 1.153                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.056  | 0.000             |                  | 0.014     | 0.070                   |        |
|                                                      | 0.056  |                   | 0.077            |           | 0.133                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.056  | 0.000             | 0.077            |           | 0.133                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.306  | 0.609             |                  |           | 0.915                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.372  | 0.741             |                  |           | 1.113                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.376  | 0.092             |                  | 0.051     | 0.519                   |        |
|                                                      | 0.376  |                   | 0.140            |           | 0.516                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.376  | 0.092             | 0.140            |           | 0.608                   |        |
| Rear, WLAN 1 Tx<br>20mm → w/WWAN<br>Full power       | 0.241  | 0.092             |                  | 0.051     | 0.384                   |        |
|                                                      | 0.241  |                   | 0.140            |           | 0.381                   |        |
| Rear, WLAN 2 Tx<br>20mm → w/WWAN<br>Full power       | 0.241  | 0.092             | 0.140            |           | 0.473                   |        |

### 14.33. Sum of the SAR for LTE Band 26 & WLAN 5.8 GHz Band

| Test Position                                        | Data   |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|--------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 26 | WLAN 5.8 GHz Main | WLAN 5.8 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.919  | 0.065             |                  | 0.0000609 | 0.984                   |        |
|                                                      | 0.919  |                   | 0.013            |           | 0.932                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.919  | 0.065             | 0.013            |           | 0.997                   |        |
| Edge 1, WLAN 1 Tx<br>37mm → w/WWAN<br>Full power     | 0.177  | 0.065             |                  | 0.0000609 | 0.242                   |        |
|                                                      | 0.177  |                   | 0.013            |           | 0.190                   |        |
| Edge 1, WLAN 2 Tx<br>37mm → w/WWAN<br>Full power     | 0.177  | 0.065             | 0.013            |           | 0.255                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.013  |                   |                  | 0.198     | 0.211                   |        |
|                                                      | 0.013  |                   | 0.687            |           | 0.700                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.020  |                   |                  | 0.205     | 0.225                   |        |
|                                                      | 0.020  |                   | 0.972            |           | 0.992                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.056  | 0.0000162         |                  | 0.014     | 0.070                   |        |
|                                                      | 0.056  |                   | 0.029            |           | 0.085                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.056  | 0.0000162         | 0.029            |           | 0.085                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.306  | 0.711             |                  |           | 1.017                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.372  | 0.831             |                  |           | 1.203                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.376  | 0.116             |                  | 0.051     | 0.543                   |        |
|                                                      | 0.376  |                   | 0.141            |           | 0.517                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.376  | 0.116             | 0.141            |           | 0.633                   |        |
| Rear, WLAN 1 Tx<br>20mm → w/WWAN<br>Full power       | 0.241  | 0.116             |                  | 0.051     | 0.408                   |        |
|                                                      | 0.241  |                   | 0.141            |           | 0.382                   |        |
| Rear, WLAN 2 Tx<br>20mm → w/WWAN<br>Full power       | 0.241  | 0.116             | 0.141            |           | 0.498                   |        |

#### 14.34. Sum of the SAR for LTE Band 41 & WLAN 2.4 GHz Band

| Test Position                                        | Data    |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|---------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 41  | WLAN 2.4 GHz Main | WLAN 2.4 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.596   | 0.014             |                  | 0.0000609 | 0.610                   |        |
|                                                      | 0.596   |                   | 0.013            |           | 0.609                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.596   | 0.014             | 0.013            |           | 0.623                   |        |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.171   | 0.014             |                  | 0.0000609 | 0.185                   |        |
|                                                      | 0.171   |                   | 0.013            |           | 0.184                   |        |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.171   | 0.014             | 0.013            |           | 0.198                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.00708 |                   |                  | 0.198     | 0.205                   |        |
|                                                      | 0.00708 |                   | 0.656            |           | 0.663                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.0099  |                   |                  | 0.205     | 0.215                   |        |
|                                                      | 0.0099  |                   | 0.701            |           | 0.711                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.00797 | 0.044             |                  | 0.014     | 0.066                   |        |
|                                                      | 0.00797 |                   | 0.046            |           | 0.054                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.00797 | 0.044             | 0.046            |           | 0.098                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.179   | 0.769             |                  |           | 0.948                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.156   | 0.854             |                  |           | 1.010                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.434   | 0.096             |                  | 0.051     | 0.581                   |        |
|                                                      | 0.434   |                   | 0.135            |           | 0.569                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.434   | 0.096             | 0.135            |           | 0.665                   |        |
| Rear, WLAN 1 Tx<br>21mm → w/WWAN<br>Full power       | 0.231   | 0.096             |                  | 0.051     | 0.378                   |        |
|                                                      | 0.231   |                   | 0.135            |           | 0.366                   |        |
| Rear, WLAN 2 Tx<br>21mm → w/WWAN<br>Full power       | 0.231   | 0.096             | 0.135            |           | 0.462                   |        |

### 14.35. Sum of the SAR for LTE Band 41 & WLAN 5.2/5.3 GHz Band

| Test Position                                        | Data    |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|---------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 41  | WLAN 5.3 GHz Main | WLAN 5.3 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.596   | 0.049             |                  | 0.0000609 | 0.645                   |        |
|                                                      | 0.596   |                   | 0.030            |           | 0.626                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.596   | 0.049             | 0.030            |           | 0.675                   |        |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.171   | 0.049             |                  | 0.0000609 | 0.220                   |        |
|                                                      | 0.171   |                   | 0.030            |           | 0.201                   |        |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.171   | 0.049             | 0.030            |           | 0.250                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.00708 |                   |                  | 0.198     | 0.205                   |        |
|                                                      | 0.00708 |                   | 1.102            |           | 1.109                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.0099  |                   |                  | 0.205     | 0.215                   |        |
|                                                      | 0.0099  |                   | 1.186            |           | 1.196                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.00797 | 0.016             |                  | 0.014     | 0.038                   |        |
|                                                      | 0.00797 |                   | 0.122            |           | 0.130                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.00797 | 0.016             | 0.122            |           | 0.146                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.179   | 0.620             |                  |           | 0.799                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.156   | 0.763             |                  |           | 0.919                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.434   | 0.076             |                  | 0.051     | 0.561                   |        |
|                                                      | 0.434   |                   | 0.107            |           | 0.541                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.434   | 0.076             | 0.107            |           | 0.617                   |        |
| Rear, WLAN 1 Tx<br>21mm → w/WWAN<br>Full power       | 0.231   | 0.076             |                  | 0.051     | 0.358                   |        |
|                                                      | 0.231   |                   | 0.107            |           | 0.338                   |        |
| Rear, WLAN 2 Tx<br>21mm → w/WWAN<br>Full power       | 0.231   | 0.076             | 0.107            |           | 0.414                   |        |

### 14.36. Sum of the SAR for LTE Band 41 & WLAN 5.5 GHz Band

| Test Position                                        | Data    |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|---------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 41  | WLAN 5.5 GHz Main | WLAN 5.5 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.596   | 0.086             |                  | 0.0000609 | 0.682                   |        |
|                                                      | 0.596   |                   | 0.017            |           | 0.613                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.596   | 0.086             | 0.017            |           | 0.699                   |        |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.171   | 0.086             |                  | 0.0000609 | 0.257                   |        |
|                                                      | 0.171   |                   | 0.017            |           | 0.188                   |        |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.171   | 0.086             | 0.017            |           | 0.274                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.00708 |                   |                  | 0.198     | 0.205                   |        |
|                                                      | 0.00708 |                   | 1.012            |           | 1.019                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.0099  |                   |                  | 0.205     | 0.215                   |        |
|                                                      | 0.0099  |                   | 1.133            |           | 1.143                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.00797 | 0.000             |                  | 0.014     | 0.022                   |        |
|                                                      | 0.00797 |                   | 0.077            |           | 0.085                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.00797 | 0.000             | 0.077            |           | 0.085                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.179   | 0.609             |                  |           | 0.788                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.156   | 0.741             |                  |           | 0.897                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.434   | 0.092             |                  | 0.051     | 0.577                   |        |
|                                                      | 0.434   |                   | 0.140            |           | 0.574                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.434   | 0.092             | 0.140            |           | 0.666                   |        |
| Rear, WLAN 1 Tx<br>21mm → w/WWAN<br>Full power       | 0.231   | 0.092             |                  | 0.051     | 0.374                   |        |
|                                                      | 0.231   |                   | 0.140            |           | 0.371                   |        |
| Rear, WLAN 2 Tx<br>21mm → w/WWAN<br>Full power       | 0.231   | 0.092             | 0.140            |           | 0.463                   |        |

### 14.37. Sum of the SAR for LTE Band 41 & WLAN 5.8 GHz Band

| Test Position                                        | Data    |                   |                  |           | $\Sigma$ 1-g SAR (mW/g) | Remark |
|------------------------------------------------------|---------|-------------------|------------------|-----------|-------------------------|--------|
|                                                      | LTE 41  | WLAN 5.8 GHz Main | WLAN 5.8 GHz Aux | Bluetooth |                         |        |
| Edge 1, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction | 0.596   | 0.065             |                  | 0.0000609 | 0.661                   |        |
|                                                      | 0.596   |                   | 0.013            |           | 0.609                   |        |
| Edge 1, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction | 0.596   | 0.065             | 0.013            |           | 0.674                   |        |
| Edge 1, WLAN 1 Tx<br>39mm → w/WWAN<br>Full power     | 0.171   | 0.065             |                  | 0.0000609 | 0.236                   |        |
|                                                      | 0.171   |                   | 0.013            |           | 0.184                   |        |
| Edge 1, WLAN 2 Tx<br>39mm → w/WWAN<br>Full power     | 0.171   | 0.065             | 0.013            |           | 0.249                   |        |
| Edge 2, WLAN 1 Tx                                    | 0.00708 |                   |                  | 0.198     | 0.205                   |        |
|                                                      | 0.00708 |                   | 0.687            |           | 0.694                   |        |
| Edge 2 tilt, WLAN 1 Tx                               | 0.0099  |                   |                  | 0.205     | 0.215                   |        |
|                                                      | 0.0099  |                   | 0.972            |           | 0.982                   |        |
| Edge 3, WLAN 1 Tx                                    | 0.00797 | 0.0000162         |                  | 0.014     | 0.022                   |        |
|                                                      | 0.00797 |                   | 0.029            |           | 0.037                   |        |
| Edge 3, WLAN 2 Tx                                    | 0.00797 | 0.0000162         | 0.029            |           | 0.037                   |        |
| Edge 4, WLAN 1 Tx                                    | 0.179   | 0.711             |                  |           | 0.890                   |        |
| Edge 4 tilt, WLAN 1 Tx                               | 0.156   | 0.831             |                  |           | 0.987                   |        |
| Rear, WLAN 1 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.434   | 0.116             |                  | 0.051     | 0.601                   |        |
|                                                      | 0.434   |                   | 0.141            |           | 0.575                   |        |
| Rear, WLAN 2 Tx<br>0mm → w/WWAN<br>Power reduction   | 0.434   | 0.116             | 0.141            |           | 0.691                   |        |
| Rear, WLAN 1 Tx<br>21mm → w/WWAN<br>Full power       | 0.231   | 0.116             |                  | 0.051     | 0.398                   |        |
|                                                      | 0.231   |                   | 0.141            |           | 0.372                   |        |
| Rear, WLAN 2 Tx<br>21mm → w/WWAN<br>Full power       | 0.231   | 0.116             | 0.141            |           | 0.488                   |        |

## 15. Appendixes

Refer to separated files for the following appendixes.

- 15.1. System Performance Check Plots
- 15.2. SAR Test Plots for WLAN 2.4 GHz Band
- 15.3. SAR Test Plots for WLAN 5.2/5.3 GHz Bands
- 15.4. SAR Test Plots for WLAN 5.5 GHz Bands
- 15.5. SAR Test Plots for WLAN 5.8 GHz Bands
- 15.6. SAR Test Plots for Bluetooth
- 15.7. SAR Test Plots for Repeat Measurement
- 15.8. Calibration Certificate for E-Field Probe EX3DV4 - SN 3917
- 15.9. Calibration Certificate for E-Field Probe EX3DV4 - SN 3922
- 15.10. Calibration Certificate for D2450V2 - SN 713
- 15.11. Calibration Certificate for D5GHzV2 - SN 1020
- 15.12. SAR Tissue Ingredients
- 15.13. SAR peak separation for SPLSR