

## **SAR and Power Density Characterization**

**Revision History**

| Rev. | Date       | Revisions     | Revised By |
|------|------------|---------------|------------|
| V1   | 2026/07/22 | Initial Issue | --         |
|      |            |               |            |
|      |            |               |            |
|      |            |               |            |

**Table of Contents**

|           |                                                         |           |
|-----------|---------------------------------------------------------|-----------|
| <b>1.</b> | <b>Introduction .....</b>                               | <b>5</b>  |
| <b>2.</b> | <b>SAR Characterization .....</b>                       | <b>5</b>  |
| 2.1.      | <i>Worst-case SAR Determination .....</i>               | <i>5</i>  |
| 2.2.      | <i>Usage Scenarios in SAR Evaluation.....</i>           | <i>6</i>  |
| 2.3.      | <i>SAR<sub>Reported</sub> .....</i>                     | <i>6</i>  |
| 2.4.      | <i>SAR Characterization .....</i>                       | <i>7</i>  |
| <b>3.</b> | <b>Power Density Characterization .....</b>             | <b>15</b> |
| 3.1.      | <i>Exposure Scenarios in PD Evaluation .....</i>        | <i>15</i> |
| 3.2.      | <i>PD Characterization Overview.....</i>                | <i>15</i> |
| 3.3.      | <i>DUT Codebook .....</i>                               | <i>16</i> |
| 3.4.      | <i>Simulation and modeling validation .....</i>         | <i>17</i> |
| 3.4.1.    | <i>Modeling for Simulation .....</i>                    | <i>17</i> |
| 3.4.2.    | <i>Modeling Validation.....</i>                         | <i>17</i> |
| 3.4.3.    | <i>Simulation for Power Density.....</i>                | <i>19</i> |
| 3.5.      | <i>PD<sub>Reported</sub>.....</i>                       | <i>20</i> |
| 3.6.      | <i>Worst-case Housing Influence Determination .....</i> | <i>20</i> |
| 3.7.      | <i>PD Characterization.....</i>                         | <i>21</i> |
| 3.7.1.    | <i>Scaling Factor for Single Beams.....</i>             | <i>21</i> |
| 3.7.2.    | <i>Scaling Factor for Beam Pairs .....</i>              | <i>22</i> |
| 3.7.3.    | <i>PD <math>P_{Limit}</math> .....</i>                  | <i>23</i> |
| <b>A</b>  | <b>Worst Phase Derivation for Beam Pair .....</b>       | <b>27</b> |
| <b>B</b>  | <b>Simulated Input Power Limit.....</b>                 | <b>28</b> |

**Figures**

|                                                                            |    |
|----------------------------------------------------------------------------|----|
| Figure 3-1: High Level Flow Chart for Power Density Characterization ..... | 15 |
|----------------------------------------------------------------------------|----|

**Tables**

|                                                                                                                                               |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----|
| Table 2-1: Usage/Exposure Scenario (State A).....                                                                                             | 6  |
| Table 2-2: Usage/Exposure Scenario (State B).....                                                                                             | 6  |
| Table 2-3: Worst-case <i>reported</i> SAR (State A) .....                                                                                     | 7  |
| Table 2-4: Worst-case <i>reported</i> SAR (State B) .....                                                                                     | 8  |
| Table 2-5: SAR Characterization (State A).....                                                                                                | 9  |
| Table 2-6: SAR Characterization (State B).....                                                                                                | 12 |
| Table 3-1: DUT Codebook (State A).....                                                                                                        | 16 |
| Table 3-2: DUT Codebook (State B).....                                                                                                        | 16 |
| Table 3-3: Beams and Surfaces Selection for PD Correlation (State A) .....                                                                    | 17 |
| Table 3-4: Beams and Surfaces Selection for PD Correlation (State B) .....                                                                    | 18 |
| Table 3-5: Measured and Simulated 4 cm <sup>2</sup> -averaged PD for Selected Beams with 6 dBm Input Power for Supported Bands (State A)..... | 18 |
| Table 3-6: Measured and Simulated 4 cm <sup>2</sup> -averaged PD for Selected Beams with 6 dBm Input Power for Supported Bands (State B)..... | 19 |
| Table 3-7: PD Evaluation Plane (State A) .....                                                                                                | 19 |
| Table 3-8: PD Evaluation Plane (State B) .....                                                                                                | 19 |
| Table 3-9: $\Delta min$ (State A) .....                                                                                                       | 20 |
| Table 3-10: $\Delta min$ (State B) .....                                                                                                      | 20 |
| Table 3-11: $P_{Limit}$ Calculation (State A) .....                                                                                           | 24 |
| Table 3-12: $P_{Limit}$ Calculation (State B) .....                                                                                           | 24 |
| Table 3-13: PD Characterization (State A) .....                                                                                               | 25 |
| Table 3-14: PD Characterization (State B) .....                                                                                               | 26 |

Table B-1: Simulated  $P_{Limit}$  for n258, n260, and n261 (State A) .....28

Table B-2: Simulated  $P_{Limit}$  for n258, n260, and n261 (State B) .....29

## 1. Introduction

The modem is enabled with WWAN/WLAN/Bluetooth/Thread/MSS/NTN TAS technology feature to control and manage transmitting power, in real time.

This DUT supports a time-average method of transmit power control for the aforementioned technologies. Consumed SAR from active radios is tracked and stored for the duration of the applicable regulatory averaging window. Rolling time-averaged SAR values are calculated from the consumed SAR reported from active radios. The time-averaged SAR is always maintained less than the applicable  $SAR_{\text{Reported}}$ .

In this report, the DUT SAR and power density (PD) are characterized for all radios that implement a TAS function to determine the power limit that corresponds to the exposure target after accounting for all device design related uncertainties, i.e.,  $SAR_{\text{Reported}}$  for Sub-7.2 GHz radio(s) and  $PD_{\text{Reported}}$  for millimeter wave radio(s).

SAR Characterization and PD Characterization will be used as input for the algorithm to operate. Both SAR Characterization and PD Characterization will be loaded and stored in the DUT.

## 2. SAR Characterization

SAR Characterization is generated to cover all radio configurations and usage scenarios that are reported in the initial submission.

### 2.1. Worst-case SAR Determination

Based on FCC KDBs and ISED RSS standards, in general, for a smartphone, the SAR evaluation is required for all the applicable exposure scenarios.

Depending on the detection scheme implemented in the smartphone, the worst-case SAR is further grouped and determined for each or combined exposure scenario(s). Note, for the 1-g SAR versus 10-g SAR, the worst-case is determined in terms of exposure ratio (i.e., exposure level relative to the corresponding 1-g or 10-g SAR limit).

- If the device does not have any detection mechanism, then the worst-case SAR is determined by taking the maximum SAR value among all exposure scenarios, i.e., worst-case SAR =  $\max \{SAR_{\text{Head}}, SAR_{\text{Body}}, SAR_{\text{Hotspot}}, SAR_{\text{Extremity/Extremity Held-to-Head}}\}$
- If the device can distinguish each of the above scenarios, then the worst-case SAR for each individual exposure scenario is given by corresponding  $SAR_{\text{Head}}$ ,  $SAR_{\text{Body}}$ ,  $SAR_{\text{Hotspot}}$ , and  $SAR_{\text{Extremity/Extremity Held-to-Head}}$
- If the device can only distinguish a subset of the scenarios, then the worst-case SAR is given by:
  - Corresponding SAR for each exposure scenario that can be distinguished
  - Worst-case SAR among all other exposure scenario(s) that cannot be distinguished

## 2.2. Usage Scenarios in SAR Evaluation

The corresponding usage scenarios for both State A and State B are supported by DUT are summarized in Table 2-1 and Table 2-2.

**Table 2-1: Usage/Exposure Scenario (State A)**

| RF Exposure | Power/Index State | Description                                                                                                                             |
|-------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Head        | Mode A            | Max permissible power relative to $P_{Limit}$ when the device is used against the user's head                                           |
| Body-worn   | Mode B            | Max permissible power relative to $P_{Limit}$ when the device is used in a Body-worn configuration                                      |
| Body-worn   | SM1               | Max permissible power relative to $P_{Limit}$ when sensing conditions are satisfied and the device is used in a Body-worn configuration |
| Hotspot     | Mode B            | Max permissible power relative to $P_{Limit}$ when the device is used in a Hotspot configuration                                        |
| Hotspot     | SM1               | Max permissible power relative to $P_{Limit}$ when sensing conditions are satisfied and the device is used in a Hotspot configuration   |
| Extremity   | Mode B            | Max permissible power relative to $P_{Limit}$ when the device is used in an Extremity configuration                                     |
| Extremity   | SM1               | Max permissible power relative to $P_{Limit}$ when sensing conditions are satisfied and the device is used in a Extremity configuration |

**Table 2-2: Usage/Exposure Scenario (State B)**

| RF Exposure | Power/Index State | Description                                                                                                                             |
|-------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Body-worn   | Mode B            | Max permissible power relative to $P_{Limit}$ when the device is used in a Body-worn configuration                                      |
| Body-worn   | SM1               | Max permissible power relative to $P_{Limit}$ when sensing conditions are satisfied and the device is used in a Body-worn configuration |
| Hotspot     | Mode B            | Max permissible power relative to $P_{Limit}$ when the device is used in a Hotspot configuration                                        |
| Hotspot     | SM1               | Max permissible power relative to $P_{Limit}$ when sensing conditions are satisfied and the device is used in a Hotspot configuration   |
| Extremity   | Mode B            | Max permissible power relative to $P_{Limit}$ when the device is used in an Extremity configuration                                     |
| Extremity   | SM1               | Max permissible power relative to $P_{Limit}$ when sensing conditions are satisfied and the device is used in a Extremity configuration |

## 2.3. $SAR_{Reported}$

The total device design and related uncertainties of the DUT, including TxAGC and device to device variation, are accounted for by the following equation:

$$SAR_{Reported} < SAR_{regulatory\ limit} \times 10^{\frac{-total\ uncertainty}{10}}$$

For the regulatory requirement of 1.6 W/kg, and 4.0 W/kg, 1-g, 10-g SAR respectively, the  $SAR_{Reported}$  values, accounting for total uncertainty, are outlined within the SAR Characterization tables:

## 2.4. SAR Characterization

The worst-case *reported* SAR for each antenna/technology/band/Power/Index State is summarized in Table 2-3:

**Table 2-3: Worst-case *reported* SAR (State A)**

| Tech/Band                  | Antenna |        |           | Worst-case SAR (W/kg) |       |           | P <sub>Limit</sub> (dBm) + Uncertainty (dBm) |       |           |
|----------------------------|---------|--------|-----------|-----------------------|-------|-----------|----------------------------------------------|-------|-----------|
|                            | Head    | Body   | Extremity | Head                  | Body  | Extremity | Head                                         | Body  | Extremity |
| GSM 850 GMSK 2 Slot(s)     | ANT 14  | ANT 14 | N/A       | 0.522                 | 0.999 | N/A       | 32.50                                        | 32.50 | N/A       |
| GSM 1900 GMSK 2 Slot(s)    | ANT 2   | ANT 3  | N/A       | 1.117                 | 1.193 | N/A       | 29.30                                        | 27.40 | N/A       |
| W-CDMA B2                  | ANT 2   | ANT 1  | N/A       | 1.133                 | 1.197 | N/A       | 23.30                                        | 23.50 | N/A       |
| W-CDMA B4                  | ANT 2   | ANT 3  | N/A       | 1.130                 | 1.199 | N/A       | 23.30                                        | 21.70 | N/A       |
| W-CDMA B5                  | ANT 14  | ANT 14 | N/A       | 0.533                 | 1.046 | N/A       | 25.70                                        | 25.70 | N/A       |
| LTE FDD B2                 | N/A     | N/A    | N/A       | N/A                   | N/A   | N/A       | N/A                                          | N/A   | N/A       |
| LTE FDD B4                 | N/A     | N/A    | N/A       | N/A                   | N/A   | N/A       | N/A                                          | N/A   | N/A       |
| LTE FDD B5                 | ANT 12  | ANT 14 | N/A       | 0.743                 | 0.964 | N/A       | 25.10                                        | 25.70 | N/A       |
| LTE FDD B7                 | ANT 2   | ANT 3  | N/A       | 1.190                 | 1.199 | N/A       | 25.30                                        | 22.20 | N/A       |
| LTE FDD B12                | ANT 12  | ANT 14 | N/A       | 0.501                 | 0.987 | N/A       | 25.40                                        | 25.70 | N/A       |
| LTE FDD B13                | ANT 12  | ANT 14 | N/A       | 0.586                 | 1.177 | N/A       | 25.40                                        | 25.70 | N/A       |
| LTE FDD B14                | ANT 12  | ANT 14 | N/A       | 0.538                 | 1.182 | N/A       | 25.10                                        | 25.70 | N/A       |
| LTE FDD B17                | N/A     | N/A    | N/A       | N/A                   | N/A   | N/A       | N/A                                          | N/A   | N/A       |
| LTE FDD B25                | ANT 2   | ANT 3  | N/A       | 1.194                 | 1.199 | N/A       | 23.70                                        | 21.30 | N/A       |
| LTE FDD B26                | ANT 12  | ANT 14 | N/A       | 0.618                 | 1.109 | N/A       | 25.10                                        | 25.70 | N/A       |
| LTE FDD B30                | ANT 2   | ANT 2  | N/A       | 1.191                 | 1.199 | N/A       | 23.70                                        | 17.50 | N/A       |
| LTE TDD B41 PC3            | ANT 2   | ANT 14 | N/A       | 0.698                 | 1.194 | N/A       | 25.70                                        | 20.70 | N/A       |
| LTE TDD B41 PC2            | ANT 2   | ANT 3  | N/A       | 0.387                 | 0.454 | N/A       | 28.70                                        | 24.40 | N/A       |
| LTE TDD B48                | ANT 2   | ANT 4  | N/A       | 0.542                 | 1.199 | N/A       | 26.00                                        | 20.50 | N/A       |
| LTE TDD B53                | ANT 2   | ANT 2  | N/A       | 0.447                 | 1.131 | N/A       | 20.70                                        | 19.50 | N/A       |
| LTE FDD B66                | ANT 2   | ANT 3  | N/A       | 1.153                 | 1.198 | N/A       | 23.30                                        | 21.80 | N/A       |
| LTE FDD B71                | ANT 12  | ANT 14 | N/A       | 0.697                 | 1.190 | N/A       | 25.40                                        | 25.70 | N/A       |
| LTE FDD B106               | ANT 12  | ANT 1  | N/A       | 0.910                 | 0.890 | N/A       | 25.10                                        | 25.70 | N/A       |
| MSS (L-Band)               | N/A     | N/A    | ANT 2     | N/A                   | N/A   | 2.938     | N/A                                          | N/A   | 22.50     |
| FR-1 FDD n2                | N/A     | N/A    | N/A       | N/A                   | N/A   | N/A       | N/A                                          | N/A   | N/A       |
| FR-1 FDD n5                | ANT 12  | ANT 14 | N/A       | 0.558                 | 0.918 | N/A       | 25.10                                        | 25.70 | N/A       |
| FR-1 FDD n7                | ANT 2   | ANT 3  | N/A       | 1.189                 | 1.187 | N/A       | 25.70                                        | 23.20 | N/A       |
| FR-1 FDD n12               | ANT 12  | ANT 14 | N/A       | 0.455                 | 1.105 | N/A       | 25.40                                        | 25.70 | N/A       |
| FR-1 FDD n14               | ANT 12  | ANT 14 | N/A       | 0.476                 | 1.131 | N/A       | 25.10                                        | 25.70 | N/A       |
| FR-1 FDD n25               | ANT 2   | ANT 3  | N/A       | 1.174                 | 1.179 | N/A       | 23.40                                        | 21.30 | N/A       |
| FR-1 FDD n26               | ANT 12  | ANT 14 | N/A       | 0.640                 | 1.177 | N/A       | 25.10                                        | 25.70 | N/A       |
| FR-1 FDD n30               | ANT 2   | ANT 2  | N/A       | 1.190                 | 1.187 | N/A       | 23.80                                        | 17.50 | N/A       |
| FR-1 TDD n41 PC3           | ANT 2   | ANT 1  | N/A       | 1.129                 | 1.192 | N/A       | 25.70                                        | 25.20 | N/A       |
| FR-1 TDD n41 PC2           | N/A     | N/A    | N/A       | N/A                   | N/A   | N/A       | N/A                                          | N/A   | N/A       |
| FR-1 TDD n48               | ANT 2   | ANT 4  | N/A       | 0.834                 | 1.194 | N/A       | 26.00                                        | 19.10 | N/A       |
| FR-1 TDD n53               | ANT 2   | ANT 14 | N/A       | 0.643                 | 1.179 | N/A       | 20.70                                        | 20.70 | N/A       |
| FR-1 FDD n66               | ANT 2   | ANT 3  | N/A       | 1.169                 | 1.179 | N/A       | 23.30                                        | 22.00 | N/A       |
| FR-1 FDD n70               | ANT 2   | ANT 1  | N/A       | 1.122                 | 1.197 | N/A       | 24.00                                        | 24.70 | N/A       |
| FR-1 FDD n71               | ANT 12  | ANT 14 | N/A       | 0.778                 | 1.109 | N/A       | 25.40                                        | 25.70 | N/A       |
| FR-1 TDD n77 (Block A) PC3 | ANT 4   | ANT 7  | N/A       | 1.106                 | 1.197 | N/A       | 25.50                                        | 20.80 | N/A       |
| FR-1 TDD n77 (Block A) PC2 | N/A     | N/A    | N/A       | N/A                   | N/A   | N/A       | N/A                                          | N/A   | N/A       |
| FR-1 TDD n77 (Block C) PC3 | ANT 2   | ANT 7  | N/A       | 1.195                 | 1.185 | N/A       | 26.00                                        | 19.90 | N/A       |
| FR-1 TDD n77 (Block C) PC2 | N/A     | N/A    | N/A       | N/A                   | N/A   | N/A       | N/A                                          | N/A   | N/A       |
| Wi-Fi 2.4 GHz              | ANT 4   | ANT 4  | N/A       | 0.336                 | 1.187 | N/A       | 21.20                                        | 19.00 | N/A       |
| Wi-Fi U-NII 1              | N/A     | N/A    | N/A       | N/A                   | N/A   | N/A       | N/A                                          | N/A   | N/A       |
| Wi-Fi U-NII 2A             | ANT 6   | ANT 5  | N/A       | 0.002                 | 1.063 | N/A       | 20.60                                        | 20.40 | N/A       |
| Wi-Fi U-NII 2C             | ANT 5   | ANT 5  | N/A       | 0.037                 | 1.184 | N/A       | 20.40                                        | 16.50 | N/A       |
| Wi-Fi U-NII 3              | ANT 5   | ANT 5  | N/A       | 0.087                 | 1.174 | N/A       | 20.40                                        | 14.25 | N/A       |
| Wi-Fi U-NII 5              | ANT 6   | ANT 5  | N/A       | 0.000                 | 0.845 | N/A       | 14.75                                        | 13.50 | N/A       |
| Wi-Fi U-NII 6              | ANT 6   | ANT 5  | N/A       | 0.002                 | 0.726 | N/A       | 13.50                                        | 12.50 | N/A       |
| Wi-Fi U-NII 7              | ANT 5   | ANT 5  | N/A       | 0.002                 | 1.052 | N/A       | 14.00                                        | 14.00 | N/A       |
| Wi-Fi U-NII 8              | ANT 6   | ANT 5  | N/A       | 0.000                 | 1.144 | N/A       | 13.25                                        | 14.25 | N/A       |
| Bluetooth 2.4 GHz          | ANT 4   | ANT 3  | N/A       | 0.237                 | 1.024 | N/A       | 21.00                                        | 20.50 | N/A       |
| NB U-NII 1                 | ANT 5   | ANT 6  | N/A       | 0.000                 | 0.759 | N/A       | 14.25                                        | 14.50 | N/A       |
| NB U-NII 3                 | ANT 5   | ANT 6  | N/A       | 0.070                 | 1.186 | N/A       | 19.50                                        | 16.00 | N/A       |
| NB U-NII 5                 | ANT 5   | ANT 6  | N/A       | 0.000                 | 0.047 | N/A       | -0.25                                        | 3.50  | N/A       |
| 802.15.4                   | ANT 4   | ANT 3  | N/A       | 0.349                 | 1.153 | N/A       | 21.00                                        | 20.50 | N/A       |

Using the reported SAR listed in Table 2-3, and following the procedure described in §2.1, the SAR Characterization<sup>1</sup> of this DUT is listed in Table 2-5.

<sup>1</sup> WLAN/Bluetooth/NB U-NII/802.15.4 do not have declared uncertainties. The SAR<sub>Reported</sub> is 75% of its respective regulatory limit.

**Table 2-4: Worst-case reported SAR (State B)**

| Tech/Band                  | Antenna |           | Worst-case SAR (W/kg) |           | $P_{\text{Limit}} \text{ (dBm)} + \text{Uncertainty (dBm)}$ |           |
|----------------------------|---------|-----------|-----------------------|-----------|-------------------------------------------------------------|-----------|
|                            | Body    | Extremity | Body                  | Extremity | Body                                                        | Extremity |
| GSM 850 GMSK 2 Slot(s)     | ANT 14  | ANT 1     | 0.964                 | 1.059     | 32.50                                                       | 31.00     |
| GSM 1900 GMSK 2 Slot(s)    | ANT 2   | ANT 3     | 1.194                 | 2.361     | 23.50                                                       | 27.30     |
| W-CDMA B2                  | ANT 14  | ANT 3     | 1.196                 | 2.331     | 23.50                                                       | 20.80     |
| W-CDMA B4                  | ANT 14  | ANT 2     | 1.187                 | 2.755     | 24.00                                                       | 17.70     |
| W-CDMA B5                  | ANT 1   | ANT 1     | 1.125                 | 1.396     | 25.70                                                       | 25.70     |
| LTE FDD B2                 | N/A     | N/A       | N/A                   | N/A       | N/A                                                         | N/A       |
| LTE FDD B4                 | N/A     | N/A       | N/A                   | N/A       | N/A                                                         | N/A       |
| LTE FDD B5                 | ANT 1   | ANT 1     | 1.150                 | 1.574     | 25.70                                                       | 25.70     |
| LTE FDD B7                 | ANT 2   | ANT 3     | 1.195                 | 2.003     | 17.70                                                       | 23.20     |
| LTE FDD B12                | ANT 14  | ANT 1     | 0.877                 | 1.273     | 25.70                                                       | 25.70     |
| LTE FDD B13                | ANT 14  | ANT 1     | 1.169                 | 1.246     | 25.70                                                       | 25.70     |
| LTE FDD B14                | ANT 14  | ANT 1     | 1.168                 | 1.213     | 25.70                                                       | 25.70     |
| LTE FDD B17                | N/A     | N/A       | N/A                   | N/A       | N/A                                                         | N/A       |
| LTE FDD B25                | ANT 2   | ANT 3     | 1.197                 | 2.853     | 17.50                                                       | 21.40     |
| LTE FDD B26                | ANT 14  | ANT 12    | 0.984                 | 1.263     | 25.70                                                       | 25.10     |
| LTE FDD B30                | ANT 3   | ANT 3     | 1.191                 | 2.815     | 20.90                                                       | 20.90     |
| LTE TDD B41 PC3            | ANT 2   | ANT 1     | 1.198                 | 2.966     | 19.90                                                       | 24.70     |
| LTE TDD B41 PC2            | N/A     | ANT 3     | N/A                   | 1.250     | N/A                                                         | 27.00     |
| LTE TDD B48                | ANT 3   | ANT 3     | 1.198                 | 2.602     | 25.60                                                       | 25.80     |
| LTE TDD B53                | ANT 2   | ANT 2     | 1.190                 | 1.292     | 19.70                                                       | 19.70     |
| LTE FDD B66                | ANT 1   | ANT 3     | 1.197                 | 2.663     | 23.10                                                       | 21.50     |
| LTE FDD B71                | ANT 14  | ANT 12    | 1.143                 | 1.231     | 25.70                                                       | 25.40     |
| LTE FDD B106               | ANT 1   | ANT 12    | 1.060                 | 1.059     | 25.70                                                       | 25.10     |
| MSS (L-Band)               | N/A     | ANT 2     | N/A                   | 2.916     | N/A                                                         | 23.00     |
| FR-1 FDD n2                | N/A     | N/A       | N/A                   | N/A       | N/A                                                         | N/A       |
| FR-1 FDD n5                | ANT 14  | ANT 1     | 0.987                 | 1.188     | 25.70                                                       | 25.70     |
| FR-1 FDD n7                | ANT 1   | ANT 2     | 1.192                 | 2.531     | 22.70                                                       | 17.60     |
| FR-1 FDD n12               | ANT 1   | ANT 1     | 1.186                 | 1.291     | 25.70                                                       | 25.70     |
| FR-1 FDD n14               | ANT 14  | ANT 1     | 1.122                 | 1.441     | 25.70                                                       | 25.70     |
| FR-1 FDD n25               | ANT 2   | ANT 2     | 1.199                 | 2.752     | 17.00                                                       | 17.00     |
| FR-1 FDD n26               | ANT 14  | ANT 12    | 0.907                 | 1.247     | 25.70                                                       | 25.10     |
| FR-1 FDD n30               | ANT 14  | ANT 1     | 1.198                 | 2.602     | 22.90                                                       | 22.70     |
| FR-1 TDD n41 PC3           | ANT 3   | ANT 2     | 1.113                 | 2.122     | 20.40                                                       | 17.50     |
| FR-1 TDD n41 PC2           | N/A     | N/A       | N/A                   | N/A       | N/A                                                         | N/A       |
| FR-1 TDD n48               | ANT 4   | ANT 3     | 1.191                 | 2.968     | 18.40                                                       | 23.90     |
| FR-1 TDD n53               | ANT 2   | ANT 2     | 1.184                 | 1.772     | 17.70                                                       | 17.70     |
| FR-1 FDD n66               | ANT 1   | ANT 3     | 1.183                 | 2.195     | 23.10                                                       | 21.50     |
| FR-1 FDD n70               | ANT 3   | ANT 2     | 1.170                 | 2.825     | 21.80                                                       | 17.50     |
| FR-1 FDD n71               | ANT 14  | ANT 1     | 1.049                 | 1.170     | 25.70                                                       | 25.70     |
| FR-1 TDD n77 (Block A) PC3 | ANT 7   | ANT 2     | 1.168                 | 2.662     | 19.80                                                       | 20.10     |
| FR-1 TDD n77 (Block A) PC2 | N/A     | N/A       | N/A                   | N/A       | N/A                                                         | N/A       |
| FR-1 TDD n77 (Block C) PC3 | ANT 3   | ANT 2     | 1.181                 | 2.869     | 23.40                                                       | 18.60     |
| FR-1 TDD n77 (Block C) PC2 | N/A     | N/A       | N/A                   | N/A       | N/A                                                         | N/A       |
| Wi-Fi 2.4 GHz              | ANT 3   | ANT 3     | 1.137                 | 1.538     | 19.00                                                       | 19.00     |
| Wi-Fi U-NII 1              | N/A     | N/A       | N/A                   | N/A       | N/A                                                         | N/A       |
| Wi-Fi U-NII 2A             | ANT 5   | ANT 5     | 1.121                 | 0.211     | 20.00                                                       | 20.00     |
| Wi-Fi U-NII 2C             | ANT 5   | ANT 5     | 1.167                 | 0.110     | 16.00                                                       | 16.00     |
| Wi-Fi U-NII 3              | ANT 5   | ANT 5     | 1.160                 | 0.104     | 14.75                                                       | 14.75     |
| Wi-Fi U-NII 5              | ANT 5   | ANT 5     | 0.661                 | 0.042     | 13.00                                                       | 13.00     |
| Wi-Fi U-NII 6              | ANT 5   | ANT 5     | 0.706                 | 0.035     | 12.00                                                       | 12.00     |
| Wi-Fi U-NII 7              | ANT 6   | ANT 6     | 0.399                 | 0.021     | 12.50                                                       | 12.50     |
| Wi-Fi U-NII 8              | ANT 5   | ANT 5     | 1.188                 | 0.050     | 15.25                                                       | 15.25     |
| Bluetooth 2.4 GHz          | ANT 4   | ANT 4     | 1.010                 | 1.239     | 19.75                                                       | 19.75     |
| NB U-NII 1                 | ANT 6   | ANT 5     | 0.669                 | 0.047     | 14.50                                                       | 14.25     |
| NB U-NII 3                 | ANT 6   | ANT 5     | 1.188                 | 0.027     | 15.75                                                       | 14.25     |
| NB U-NII 5                 | ANT 6   | ANT 5     | 0.045                 | 0.000     | 3.50                                                        | -0.25     |
| 802.15.4                   | ANT 4   | ANT 4     | 1.046                 | 2.034     | 18.00                                                       | 18.00     |

Using the reported SAR listed in Table 2-4, and following the procedure described in §2.1, the SAR Characterization<sup>2</sup> of this DUT is listed in Table 2-6.

<sup>2</sup> WLAN/Bluetooth/NB U-NII/802.15.4 do not have declared uncertainties. The  $SAR_{\text{Reported}}$  is 75% of its respective regulatory limit.

Table 2-5: SAR Characterization (State A)

| RF Exposure Condition | Port   | Antenna | Technology              | Channel | P <sub>max</sub> (dBm) | P <sub>1dBm</sub> (dBm) | P <sub>1dBm</sub> (dBm) | SAR <sub>max</sub> (W/kg) | SAR <sub>max</sub> (W/kg) | Uncertainty (±) | RF Exposure Condition | Port   | Antenna | Technology              | Channel | P <sub>max</sub> (dBm) | P <sub>1dBm</sub> (dBm) | P <sub>1dBm</sub> (dBm) | SAR <sub>max</sub> (W/kg) | SAR <sub>max</sub> (W/kg) | Uncertainty (±) |
|-----------------------|--------|---------|-------------------------|---------|------------------------|-------------------------|-------------------------|---------------------------|---------------------------|-----------------|-----------------------|--------|---------|-------------------------|---------|------------------------|-------------------------|-------------------------|---------------------------|---------------------------|-----------------|
| Head                  | Port B | ANT 1   | GSM 850 GSMK 2 Slot(s)  | ALL     | 31.0                   | 31.0                    | 29.6                    | 0.044                     | 0.061                     | 1.42            | Body                  | Port B | ANT 1   | GSM 850 GSMK 2 Slot(s)  | ALL     | 31.0                   | 31.0                    | 30.2                    | 0.518                     | 0.617                     | 0.76            |
| Head                  | Port A | ANT 14  | GSM 850 GSMK 2 Slot(s)  | ALL     | 32.5                   | 32.5                    | 31.0                    | 0.373                     | 0.522                     | 1.46            | Body                  | Port A | ANT 14  | GSM 850 GSMK 2 Slot(s)  | ALL     | 32.5                   | 32.5                    | 30.6                    | 0.642                     | 0.999                     | 1.92            |
| Head                  | Port B | ANT 1   | GSM 1900 GSMK 2 Slot(s) | ALL     | 28.0                   | 28.0                    | 27.0                    | 0.181                     | 0.228                     | 1.00            | Body                  | Port B | ANT 1   | GSM 1900 GSMK 2 Slot(s) | ALL     | 28.0                   | 28.0                    | 27.8                    | 0.723                     | 0.910                     | 1.00            |
| Head                  | Port A | ANT 2   | GSM 1900 GSMK 2 Slot(s) | ALL     | 31.0                   | 29.5                    | 27.8                    | 0.258                     | 0.320                     | 1.46            | Body                  | Port A | ANT 2   | GSM 1900 GSMK 2 Slot(s) | ALL     | 31.0                   | 29.5                    | 27.7                    | 0.952                     | 1.200                     | 1.01            |
| Head                  | Port D | ANT 3   | GSM 1900 GSMK 2 Slot(s) | ALL     | 28.5                   | 28.5                    | 27.5                    | 0.120                     | 0.151                     | 1.02            | Body                  | Port D | ANT 3   | GSM 1900 GSMK 2 Slot(s) | ALL     | 28.5                   | 27.4                    | 26.3                    | 0.938                     | 1.200                     | 1.07            |
| Head                  | Port C | ANT 14  | GSM 1900 GSMK 2 Slot(s) | ALL     | 30.3                   | 30.3                    | 29.4                    | 0.158                     | 0.194                     | 0.89            | Body                  | Port C | ANT 14  | GSM 1900 GSMK 2 Slot(s) | ALL     | 30.3                   | 28.9                    | 28.0                    | 0.977                     | 1.200                     | 0.88            |
| Head                  | Port B | ANT 1   | W-CDMA B2               | ALL     | 23.7                   | 23.7                    | 22.7                    | 0.303                     | 0.382                     | 1.00            | Body                  | Port B | ANT 1   | W-CDMA B2               | ALL     | 23.7                   | 23.5                    | 22.5                    | 0.954                     | 1.200                     | 1.00            |
| Head                  | Port A | ANT 2   | W-CDMA B2               | ALL     | 25.7                   | 23.3                    | 21.8                    | 0.858                     | 1.200                     | 1.46            | Body                  | Port A | ANT 2   | W-CDMA B2               | ALL     | 25.7                   | 17.5                    | 16.4                    | 0.937                     | 1.200                     | 1.08            |
| Head                  | Port D | ANT 3   | W-CDMA B2               | ALL     | 24.2                   | 24.2                    | 23.2                    | 0.145                     | 0.183                     | 1.02            | Body                  | Port D | ANT 3   | W-CDMA B2               | ALL     | 24.2                   | 21.4                    | 20.4                    | 0.948                     | 1.200                     | 1.02            |
| Head                  | Port C | ANT 14  | W-CDMA B2               | ALL     | 25.5                   | 25.5                    | 24.6                    | 0.222                     | 0.273                     | 0.89            | Body                  | Port C | ANT 14  | W-CDMA B2               | ALL     | 25.5                   | 22.2                    | 21.3                    | 0.977                     | 1.200                     | 0.89            |
| Head                  | Port B | ANT 1   | W-CDMA B4               | ALL     | 24.7                   | 24.7                    | 23.6                    | 0.247                     | 0.300                     | 1.14            | Body                  | Port B | ANT 1   | W-CDMA B4               | ALL     | 24.7                   | 23.2                    | 22.3                    | 0.901                     | 1.200                     | 1.14            |
| Head                  | Port A | ANT 2   | W-CDMA B4               | ALL     | 25.7                   | 23.3                    | 22.0                    | 0.898                     | 1.200                     | 1.26            | Body                  | Port A | ANT 2   | W-CDMA B4               | ALL     | 25.7                   | 17.3                    | 16.4                    | 0.986                     | 1.200                     | 0.88            |
| Head                  | Port D | ANT 3   | W-CDMA B4               | ALL     | 25.2                   | 25.2                    | 22.9                    | 0.093                     | 0.157                     | 2.27            | Body                  | Port D | ANT 3   | W-CDMA B4               | ALL     | 25.2                   | 21.7                    | 19.0                    | 0.643                     | 1.200                     | 2.71            |
| Head                  | Port C | ANT 14  | W-CDMA B4               | ALL     | 25.5                   | 25.5                    | 24.4                    | 0.164                     | 0.211                     | 1.09            | Body                  | Port C | ANT 14  | W-CDMA B4               | ALL     | 25.5                   | 22.8                    | 21.5                    | 0.884                     | 1.200                     | 1.33            |
| Head                  | Port B | ANT 1   | W-CDMA B5               | ALL     | 25.7                   | 25.7                    | 24.3                    | 0.046                     | 0.063                     | 1.42            | Body                  | Port B | ANT 1   | W-CDMA B5               | ALL     | 25.7                   | 25.7                    | 24.9                    | 0.591                     | 0.704                     | 0.76            |
| Head                  | Port A | ANT 14  | W-CDMA B5               | ALL     | 25.7                   | 25.7                    | 24.2                    | 0.380                     | 0.533                     | 1.46            | Body                  | Port A | ANT 14  | W-CDMA B5               | ALL     | 25.7                   | 25.7                    | 23.8                    | 0.672                     | 1.046                     | 1.92            |
| Head                  | Port B | ANT 1   | LTE FDD B5              | ALL     | 25.7                   | 25.7                    | 23.6                    | 0.045                     | 0.074                     | 2.13            | Body                  | Port B | ANT 1   | LTE FDD B5              | ALL     | 25.7                   | 25.7                    | 24.8                    | 0.560                     | 0.667                     | 0.76            |
| Head                  | Port C | ANT 12  | LTE FDD B5              | ALL     | 25.7                   | 25.1                    | 23.5                    | 0.518                     | 0.742                     | 1.57            | Body                  | Port C | ANT 12  | LTE FDD B5              | ALL     | 25.1                   | 25.7                    | 23.0                    | 0.607                     | 0.953                     | 2.06            |
| Head                  | Port A | ANT 14  | LTE FDD B5              | ALL     | 25.7                   | 25.7                    | 24.2                    | 0.325                     | 0.482                     | 1.53            | Body                  | Port A | ANT 14  | LTE FDD B5              | ALL     | 25.7                   | 24.2                    | 24.2                    | 0.688                     | 0.964                     | 1.46            |
| Head                  | Port B | ANT 1   | LTE FDD B7              | Low     | 22.7                   | 22.7                    | 21.2                    | 0.042                     | 0.059                     | 1.45            | Body                  | Port B | ANT 1   | LTE FDD B7              | Low     | 22.7                   | 22.7                    | 21.5                    | 0.609                     | 0.797                     | 1.17            |
| Head                  | Port B | ANT 1   | LTE FDD B7              | Mid     | 22.7                   | 22.7                    | 21.2                    | 0.042                     | 0.059                     | 1.45            | Body                  | Port B | ANT 1   | LTE FDD B7              | Mid     | 22.7                   | 22.7                    | 21.5                    | 0.609                     | 0.797                     | 1.17            |
| Head                  | Port B | ANT 1   | LTE FDD B7              | High    | 22.7                   | 22.7                    | 21.2                    | 0.042                     | 0.059                     | 1.45            | Body                  | Port B | ANT 1   | LTE FDD B7              | High    | 22.7                   | 22.7                    | 21.5                    | 0.609                     | 0.797                     | 1.17            |
| Head                  | Port A | ANT 2   | LTE FDD B7              | Low     | 25.7                   | 23.8                    | 22.1                    | 0.812                     | 1.200                     | 1.70            | Body                  | Port A | ANT 2   | LTE FDD B7              | Low     | 25.7                   | 17.6                    | 16.7                    | 0.971                     | 1.200                     | 0.92            |
| Head                  | Port A | ANT 2   | LTE FDD B7              | Mid     | 25.7                   | 25.7                    | 24.0                    | 0.805                     | 1.190                     | 1.70            | Body                  | Port A | ANT 2   | LTE FDD B7              | Mid     | 25.7                   | 17.4                    | 16.5                    | 0.971                     | 1.200                     | 0.92            |
| Head                  | Port A | ANT 2   | LTE FDD B7              | High    | 25.7                   | 25.7                    | 23.0                    | 0.812                     | 1.200                     | 1.70            | Body                  | Port A | ANT 2   | LTE FDD B7              | High    | 25.7                   | 17.3                    | 16.4                    | 0.971                     | 1.200                     | 0.92            |
| Head                  | Port D | ANT 3   | LTE FDD B7              | Low     | 23.2                   | 23.2                    | 21.5                    | 0.087                     | 0.130                     | 1.74            | Body                  | Port D | ANT 3   | LTE FDD B7              | Low     | 23.2                   | 23.2                    | 21.9                    | 0.883                     | 1.199                     | 1.33            |
| Head                  | Port D | ANT 3   | LTE FDD B7              | Mid     | 23.2                   | 23.2                    | 21.5                    | 0.087                     | 0.130                     | 1.74            | Body                  | Port D | ANT 3   | LTE FDD B7              | Mid     | 23.2                   | 23.2                    | 21.9                    | 0.883                     | 1.199                     | 1.33            |
| Head                  | Port D | ANT 3   | LTE FDD B7              | High    | 23.2                   | 23.2                    | 21.5                    | 0.087                     | 0.130                     | 1.74            | Body                  | Port D | ANT 3   | LTE FDD B7              | High    | 23.2                   | 23.2                    | 21.9                    | 0.883                     | 1.199                     | 1.33            |
| Head                  | Port C | ANT 14  | LTE FDD B7              | Low     | 25.5                   | 25.5                    | 24.3                    | 0.076                     | 0.100                     | 1.18            | Body                  | Port C | ANT 14  | LTE FDD B7              | Low     | 25.5                   | 17.2                    | 15.9                    | 0.799                     | 1.200                     | 1.77            |
| Head                  | Port C | ANT 14  | LTE FDD B7              | Mid     | 25.5                   | 25.5                    | 24.3                    | 0.076                     | 0.100                     | 1.18            | Body                  | Port C | ANT 14  | LTE FDD B7              | Mid     | 25.5                   | 17.2                    | 15.4                    | 0.799                     | 1.200                     | 1.77            |
| Head                  | Port C | ANT 14  | LTE FDD B7              | High    | 25.5                   | 25.5                    | 24.3                    | 0.076                     | 0.100                     | 1.18            | Body                  | Port C | ANT 14  | LTE FDD B7              | High    | 25.5                   | 17.3                    | 15.5                    | 0.799                     | 1.200                     | 1.77            |
| Head                  | Port B | ANT 1   | LTE FDD B12             | ALL     | 25.7                   | 25.7                    | 24.2                    | 0.023                     | 0.040                     | 2.47            | Body                  | Port B | ANT 1   | LTE FDD B12             | ALL     | 25.7                   | 25.7                    | 24.8                    | 0.453                     | 0.563                     | 0.84            |
| Head                  | Port C | ANT 12  | LTE FDD B12             | ALL     | 25.4                   | 25.4                    | 22.4                    | 0.251                     | 0.501                     | 3.01            | Body                  | Port C | ANT 12  | LTE FDD B12             | ALL     | 25.4                   | 25.4                    | 23.8                    | 0.638                     | 0.625                     | 1.57            |
| Head                  | Port A | ANT 14  | LTE FDD B12             | ALL     | 25.7                   | 25.7                    | 24.6                    | 0.235                     | 0.305                     | 1.13            | Body                  | Port A | ANT 14  | LTE FDD B12             | ALL     | 25.7                   | 25.7                    | 24.7                    | 0.779                     | 0.987                     | 1.03            |
| Head                  | Port B | ANT 1   | LTE FDD B13             | ALL     | 25.7                   | 25.7                    | 23.7                    | 0.051                     | 0.082                     | 2.04            | Body                  | Port B | ANT 1   | LTE FDD B13             | ALL     | 25.7                   | 25.7                    | 24.7                    | 0.622                     | 0.776                     | 0.96            |
| Head                  | Port C | ANT 12  | LTE FDD B13             | ALL     | 25.4                   | 25.4                    | 22.4                    | 0.294                     | 0.586                     | 3.00            | Body                  | Port C | ANT 12  | LTE FDD B13             | ALL     | 25.4                   | 25.4                    | 23.5                    | 0.512                     | 0.790                     | 1.88            |
| Head                  | Port A | ANT 14  | LTE FDD B13             | ALL     | 25.7                   | 25.7                    | 23.5                    | 0.206                     | 0.340                     | 2.17            | Body                  | Port A | ANT 14  | LTE FDD B13             | ALL     | 25.7                   | 25.7                    | 24.5                    | 0.887                     | 1.177                     | 1.23            |
| Head                  | Port B | ANT 1   | LTE FDD B14             | ALL     | 25.7                   | 25.7                    | 23.7                    | 0.055                     | 0.088                     | 2.04            | Body                  | Port B | ANT 1   | LTE FDD B14             | ALL     | 25.7                   | 25.7                    | 25.0                    | 0.659                     | 0.771                     | 0.68            |
| Head                  | Port C | ANT 12  | LTE FDD B14             | ALL     | 25.1                   | 25.1                    | 22.5                    | 0.281                     | 0.538                     | 2.63            | Body                  | Port C | ANT 12  | LTE FDD B14             | ALL     | 25.1                   | 25.1                    | 23.1                    | 0.512                     | 0.790                     | 1.07            |
| Head                  | Port A | ANT 14  | LTE FDD B14             | ALL     | 25.7                   | 25.7                    | 24.0                    | 0.285                     | 0.428                     | 1.75            | Body                  | Port A | ANT 14  | LTE FDD B14             | ALL     | 25.7                   | 25.7                    | 24.7                    | 0.948                     | 1.182                     | 0.96            |
| Head                  | Port C | ANT 12  | LTE FDD B14             | ALL     | 25.1                   | 25.1                    | 22.5                    | 0.294                     | 0.538                     | 2.63            | Body                  | Port C | ANT 12  | LTE FDD B14             | ALL     | 25.1                   | 25.1                    | 23.1                    | 0.378                     | 0.595                     | 1.97            |
| Head                  | Port A | ANT 14  | LTE FDD B14             | ALL     | 25.7                   | 25.7                    | 24.0                    | 0.285                     | 0.428                     | 1.75            | Body                  | Port A | ANT 14  | LTE FDD B14             | ALL     | 25.7                   | 25.7                    | 24.7                    | 0.948                     | 1.182                     | 0.96            |
| Head                  | Port B | ANT 1   | LTE FDD B25             | Low     | 23.7                   | 23.7                    | 22.6                    | 0.244                     | 0.317                     | 1.14            | Body                  | Port B | ANT 1   | LTE FDD B25             | Low     | 23.7                   | 23.6                    | 22.6                    | 0.954                     | 1.200                     | 1.00            |
| Head                  | Port B | ANT 1   | LTE FDD B25             | Mid     | 23.7                   | 23.7                    | 22.6                    | 0.244                     | 0.317                     | 1.14            | Body                  | Port B | ANT 1   | LTE FDD B25             | Mid     | 23.7                   | 23.7                    | 22.7                    | 0.936                     | 1.178                     | 1.00            |
| Head                  | Port B | ANT 1   | LTE FDD B25             | High    | 23.7                   | 23.7                    | 22.6                    | 0.244                     | 0.317                     | 1.14            | Body                  | Port B | ANT 1   | LTE FDD B25             | High    | 23.7                   | 23.5                    | 22.5                    | 0.954                     | 1.200                     | 1.00            |
| Head                  | Port A | ANT 2   | LTE FDD B25             | Low     | 25.7                   | 23.7                    | 21.8                    | 0.854                     | 1.200                     | 1.48            | Body                  | Port A | ANT 2   | LTE FDD B25             | Low     | 25.7                   | 17.7                    | 16.7                    | 0.952                     | 1.200                     | 1.01            |
| Head                  | Port A | ANT 2   | LTE FDD B25             | Mid     | 25.7                   | 23.7                    | 21.8                    | 0.854                     | 1.200                     | 1.48            | Body                  | Port A | ANT 2   | LTE FDD B25             | Mid     | 25.7                   | 17.7                    | 16.7                    | 0.952                     | 1.200                     | 1.01            |
| Head                  | Port A | ANT 2   | LTE FDD B25             | High    | 25.7                   | 23.7                    | 22.2                    | 0.854                     | 1.200                     | 1.48            | Body                  | Port A | ANT 2   | LTE FDD B25             | High    | 25.7                   | 18.5                    | 17.5                    | 0.952                     | 1.200                     | 1.01            |
| Head                  | Port D | ANT 3   | LTE FDD B25             | Low     | 24.2                   | 24.2                    | 22.4                    | 0.088                     | 0.133                     | 1.79            | Body                  | Port D | ANT 3   | LTE FDD B25             | Low     | 24.2                   | 21.3                    | 20.2                    | 0.938                     | 1.200                     | 1.07            |
| Head                  | Port D | ANT 3   | LTE FDD B25             | Mid     | 24.2                   | 24.2                    | 22.4                    | 0.088                     | 0.133                     | 1.79            | Body                  | Port D | ANT 3   | LTE FDD B25             | Mid     | 24.2                   | 21.3                    | 20.2                    | 0.938                     | 1.200                     | 1.07            |
| Head                  | Port D | ANT 3   | LTE FDD B25             | High    | 24.2                   | 24.2                    | 22.4                    | 0.088                     | 0.133                     | 1.79            | Body                  | Port D | ANT 3   | LTE FDD B25             | High    | 24.2                   | 20.9                    | 19.8                    | 0.938                     | 1.200                     | 1.07            |
| Head                  | Port C | ANT 14  | LTE FDD B25             | Low     | 25.5                   | 25.5                    | 24.7                    | 0.175                     | 0.210                     | 0.79            | Body                  | Port C | ANT 14  | LTE FDD B25             | Low     | 25.5                   | 22.9                    | 22.0                    | 0.977                     | 1.200                     | 0.89            |
| Head                  | Port C | ANT 14  | LTE FDD B25             | Mid     | 25.5                   | 25.5                    | 24.7                    | 0.175                     | 0.210                     | 0.79            | Body                  | Port C | ANT 14  | LTE FDD B25             | Mid     | 25.5                   | 22.9                    | 22.0                    | 0.977                     | 1.200                     | 0.89            |
| Head                  | Port C | ANT 14  | LTE FDD B25             | High    | 25.5                   | 25.5                    | 24.7                    | 0.175                     | 0.210                     | 0.79            | Body                  | Port C | ANT 14  | LTE FDD B25             | High    | 25.5                   | 22.6                    | 22.7                    | 0.977                     | 1.200                     | 0.89            |
| Head                  | Port B | ANT 1   | LTE FDD B26             | ALL     | 25.7                   | 25.7                    | 24.1                    | 0.040                     | 0.058                     | 1.61            | Body                  | Port B | ANT 1   | LTE FDD B26             | ALL     | 25.7                   | 25.7                    | 24.4                    | 0.310                     | 0.421                     | 1.32            |
| Head                  | Port C | ANT 12  | LTE FDD B26             | ALL     | 25.1                   | 25.1                    | 22.6                    | 0.350                     | 0.618                     | 2.47            | Body                  | Port C | ANT 12  | LTE FDD B26             | ALL     | 25.1                   | 25.1                    | 23.1                    | 0.368                     | 0.587                     | 2.03            |
| Head                  | Port A | ANT 14  | LTE FDD B26             | ALL     | 25.7                   | 25.7                    | 23.8                    | 0.164                     | 0.251                     | 1.85            | Body                  | Port A | ANT 14  | LTE FDD B26             | ALL     | 25.7                   | 25.7                    | 24.5                    | 0.834                     | 1.109                     | 1.24            |
| Head                  | Port B | ANT 1   | LTE FDD B30             | ALL     | 22.7                   | 22.7                    | 20.9                    | 0.083                     | 0.126                     | 1.81            | Body                  | Port B | ANT 1   | LTE FDD B30             | ALL     | 22.7                   | 22.7                    | 21.4                    | 0.699                     | 0.945                     | 1.31            |
| Head                  | Port A | ANT 2   | LTE FDD B30             | ALL     | 25.0                   | 23.7                    | 22.4                    | 0.884                     | 1.200                     | 1.28            | Body                  | Port A | ANT 2   | LTE FDD B30             | ALL     | 25.0                   | 17.5                    | 16.6                    | 0.983                     | 1.200                     | 0.87            |
| Head                  | Port D | ANT 3   | LTE FDD B30             | ALL     | 23.7                   | 23.7                    | 22.8                    | 0.078                     | 0.097                     | 1.94            | Body                  | Port D | ANT 3   | LTE FDD B30             | ALL     | 23.7                   | 20.4                    | 19.4                    | 0.698                     | 1.200                     | 0.99            |
| Head                  | Port C | ANT 14  | LTE FDD B30             | ALL     | 24.9                   | 24.9                    | 23.2                    | 0.036                     | 0.054                     | 1.73            | Body                  | Port C | ANT 14  | LTE FDD B30             | ALL     | 24.9                   | 22.9                    | 21.0                    | 0.750                     | 1.200                     | 1.67            |
| Head                  | Port B | ANT 1   | LTE TDD B41 PC3         | Low     | 25.7                   | 25.7                    | 23.1                    | 0.076                     | 0.138                     | 2.60            | Body                  | Port B | ANT 1   | LTE TDD B41             |         |                        |                         |                         |                           |                           |                 |

| RF Exposure Condition | Port   | Antenna | Technology       | Channel  | P <sub>EM</sub> (dBm) | P <sub>EM</sub> (dBm) | P <sub>EM</sub> (dBm) | SAR <sub>max</sub> (W/kg) | SAR <sub>max</sub> (W/kg) | Uncertainty (%) | RF Exposure Condition | Port   | Antenna | Technology       | Channel  | P <sub>EM</sub> (dBm) | P <sub>EM</sub> (dBm) | P <sub>EM</sub> (dBm) | SAR <sub>max</sub> (W/kg) | SAR <sub>max</sub> (W/kg) | Uncertainty (%) |
|-----------------------|--------|---------|------------------|----------|-----------------------|-----------------------|-----------------------|---------------------------|---------------------------|-----------------|-----------------------|--------|---------|------------------|----------|-----------------------|-----------------------|-----------------------|---------------------------|---------------------------|-----------------|
| Head                  | Port C | ANT 4   | LTE TDD B48      | Low      | 25.2                  | 25.2                  | 23.2                  | 0.260                     | 0.410                     | 1.99            | Body                  | Port C | ANT 4   | LTE TDD B48      | Low      | 25.2                  | 20.5                  | 19.2                  | 0.887                     | 1.300                     | 1.31            |
| Head                  | Port C | ANT 4   | LTE TDD B48      | Low-Mid  | 25.2                  | 25.2                  | 23.2                  | 0.260                     | 0.410                     | 1.99            | Body                  | Port C | ANT 4   | LTE TDD B48      | Low-Mid  | 25.2                  | 20.3                  | 19.0                  | 0.887                     | 1.200                     | 1.31            |
| Head                  | Port C | ANT 4   | LTE TDD B48      | Mid-High | 25.2                  | 25.2                  | 23.2                  | 0.260                     | 0.410                     | 1.99            | Body                  | Port C | ANT 4   | LTE TDD B48      | Mid-High | 25.2                  | 20.5                  | 19.2                  | 0.887                     | 1.200                     | 1.31            |
| Head                  | Port C | ANT 4   | LTE TDD B48      | High     | 25.2                  | 25.2                  | 23.2                  | 0.260                     | 0.410                     | 1.99            | Body                  | Port C | ANT 4   | LTE TDD B48      | High     | 25.2                  | 20.1                  | 18.8                  | 0.887                     | 1.200                     | 1.31            |
| Head                  | Port B | ANT 7   | LTE TDD B48      | Low      | 25.1                  | 25.1                  | 24.2                  | 0.122                     | 0.151                     | 0.92            | Body                  | Port B | ANT 7   | LTE TDD B48      | Low      | 25.1                  | 24.0                  | 22.8                  | 0.916                     | 1.200                     | 1.18            |
| Head                  | Port B | ANT 7   | LTE TDD B48      | Low-Mid  | 25.1                  | 25.1                  | 24.2                  | 0.122                     | 0.151                     | 0.92            | Body                  | Port B | ANT 7   | LTE TDD B48      | Low-Mid  | 25.1                  | 24.0                  | 22.8                  | 0.916                     | 1.200                     | 1.18            |
| Head                  | Port B | ANT 7   | LTE TDD B48      | Mid-High | 25.1                  | 25.1                  | 24.2                  | 0.122                     | 0.151                     | 0.92            | Body                  | Port B | ANT 7   | LTE TDD B48      | Mid-High | 25.1                  | 22.7                  | 21.5                  | 0.916                     | 1.200                     | 1.18            |
| Head                  | Port B | ANT 7   | LTE TDD B48      | High     | 25.1                  | 25.1                  | 24.2                  | 0.122                     | 0.151                     | 0.92            | Body                  | Port B | ANT 7   | LTE TDD B48      | High     | 25.1                  | 21.5                  | 20.3                  | 0.916                     | 1.200                     | 1.18            |
| Head                  | Port B | ANT 1   | LTE TDD B53      | ALL      | 20.7                  | 20.7                  | 19.3                  | 0.017                     | 0.024                     | 1.43            | Body                  | Port B | ANT 1   | LTE TDD B53      | ALL      | 20.7                  | 19.7                  | 19.7                  | 0.203                     | 0.257                     | 1.02            |
| Head                  | Port A | ANT 2   | LTE TDD B53      | ALL      | 20.7                  | 20.7                  | 19.1                  | 0.307                     | 0.447                     | 1.62            | Body                  | Port A | ANT 2   | LTE TDD B53      | ALL      | 20.7                  | 19.5                  | 18.7                  | 1.009                     | 1.200                     | 0.75            |
| Head                  | Port C | ANT 14  | LTE TDD B53      | ALL      | 20.7                  | 20.7                  | 18.9                  | 0.011                     | 0.017                     | 1.78            | Body                  | Port C | ANT 14  | LTE TDD B53      | ALL      | 20.7                  | 20.7                  | 18.9                  | 0.619                     | 0.932                     | 1.78            |
| Head                  | Port B | ANT 1   | LTE FDD B66      | Low      | 24.7                  | 24.7                  | 23.7                  | 0.315                     | 0.397                     | 1.01            | Body                  | Port B | ANT 1   | LTE FDD B66      | Low      | 24.7                  | 23.7                  | 22.4                  | 0.900                     | 1.200                     | 1.25            |
| Head                  | Port B | ANT 1   | LTE FDD B66      | Mid      | 24.7                  | 24.7                  | 23.7                  | 0.315                     | 0.397                     | 1.01            | Body                  | Port B | ANT 1   | LTE FDD B66      | Mid      | 24.7                  | 23.3                  | 22.0                  | 0.900                     | 1.200                     | 1.25            |
| Head                  | Port B | ANT 1   | LTE FDD B66      | High     | 24.7                  | 24.7                  | 23.7                  | 0.315                     | 0.397                     | 1.01            | Body                  | Port B | ANT 1   | LTE FDD B66      | High     | 24.7                  | 23.2                  | 21.9                  | 0.900                     | 1.200                     | 1.25            |
| Head                  | Port A | ANT 2   | LTE FDD B66      | Low      | 25.7                  | 22.7                  | 21.4                  | 0.888                     | 1.200                     | 1.26            | Body                  | Port A | ANT 2   | LTE FDD B66      | Low      | 25.7                  | 18.0                  | 17.1                  | 0.962                     | 1.200                     | 0.87            |
| Head                  | Port A | ANT 2   | LTE FDD B66      | Mid      | 25.7                  | 22.3                  | 20.8                  | 0.888                     | 1.200                     | 1.26            | Body                  | Port A | ANT 2   | LTE FDD B66      | Mid      | 25.7                  | 17.8                  | 16.9                  | 0.982                     | 1.200                     | 0.87            |
| Head                  | Port A | ANT 2   | LTE FDD B66      | High     | 25.7                  | 22.9                  | 21.6                  | 0.888                     | 1.200                     | 1.26            | Body                  | Port A | ANT 2   | LTE FDD B66      | High     | 25.7                  | 18.1                  | 17.2                  | 0.982                     | 1.200                     | 0.87            |
| Head                  | Port D | ANT 3   | LTE FDD B66      | Low      | 25.2                  | 25.2                  | 22.5                  | 0.070                     | 0.132                     | 2.72            | Body                  | Port D | ANT 3   | LTE FDD B66      | Low      | 25.2                  | 21.8                  | 19.3                  | 0.679                     | 1.200                     | 2.47            |
| Head                  | Port D | ANT 3   | LTE FDD B66      | Mid      | 25.2                  | 25.2                  | 22.5                  | 0.070                     | 0.132                     | 2.72            | Body                  | Port D | ANT 3   | LTE FDD B66      | Mid      | 25.2                  | 21.6                  | 19.1                  | 0.679                     | 1.200                     | 2.47            |
| Head                  | Port D | ANT 3   | LTE FDD B66      | High     | 25.2                  | 25.2                  | 22.5                  | 0.070                     | 0.132                     | 2.72            | Body                  | Port D | ANT 3   | LTE FDD B66      | High     | 25.2                  | 21.8                  | 19.3                  | 0.679                     | 1.200                     | 2.47            |
| Head                  | Port C | ANT 14  | LTE FDD B66      | Low      | 25.5                  | 25.5                  | 24.8                  | 0.181                     | 0.211                     | 0.67            | Body                  | Port C | ANT 14  | LTE FDD B66      | Low      | 25.5                  | 23.1                  | 22.0                  | 0.932                     | 1.200                     | 1.10            |
| Head                  | Port C | ANT 14  | LTE FDD B66      | Mid      | 25.5                  | 25.5                  | 24.8                  | 0.181                     | 0.211                     | 0.67            | Body                  | Port C | ANT 14  | LTE FDD B66      | Mid      | 25.5                  | 22.8                  | 21.7                  | 0.932                     | 1.200                     | 1.10            |
| Head                  | Port C | ANT 14  | LTE FDD B66      | High     | 25.5                  | 25.5                  | 24.8                  | 0.181                     | 0.211                     | 0.67            | Body                  | Port C | ANT 14  | LTE FDD B66      | High     | 25.5                  | 22.5                  | 21.7                  | 0.932                     | 1.200                     | 1.10            |
| Head                  | Port B | ANT 1   | LTE FDD B71      | ALL      | 25.7                  | 25.7                  | 23.9                  | 0.022                     | 0.034                     | 1.84            | Body                  | Port B | ANT 1   | LTE FDD B71      | ALL      | 25.7                  | 25.7                  | 24.5                  | 0.619                     | 0.824                     | 1.24            |
| Head                  | Port C | ANT 12  | LTE FDD B71      | ALL      | 25.4                  | 25.4                  | 22.4                  | 0.349                     | 0.697                     | 3.01            | Body                  | Port C | ANT 12  | LTE FDD B71      | ALL      | 25.4                  | 25.4                  | 22.1                  | 0.292                     | 0.627                     | 3.33            |
| Head                  | Port A | ANT 14  | LTE FDD B71      | ALL      | 25.7                  | 25.7                  | 23.9                  | 0.218                     | 0.331                     | 1.83            | Body                  | Port A | ANT 14  | LTE FDD B71      | ALL      | 25.7                  | 25.7                  | 24.3                  | 0.858                     | 1.190                     | 1.42            |
| Head                  | Port B | ANT 1   | LTE FDD B106     | ALL      | 25.7                  | 25.7                  | 23.7                  | 0.245                     | 0.388                     | 1.99            | Body                  | Port B | ANT 1   | LTE FDD B106     | ALL      | 25.7                  | 25.7                  | 24.5                  | 0.668                     | 0.890                     | 1.25            |
| Head                  | Port C | ANT 12  | LTE FDD B106     | ALL      | 25.1                  | 25.1                  | 22.8                  | 0.536                     | 0.910                     | 2.30            | Body                  | Port C | ANT 12  | LTE FDD B106     | ALL      | 25.1                  | 25.1                  | 23.2                  | 0.198                     | 0.307                     | 1.91            |
| Head                  | Port A | ANT 14  | LTE FDD B106     | ALL      | 25.7                  | 25.7                  | 23.7                  | 0.444                     | 0.701                     | 1.99            | Body                  | Port A | ANT 14  | LTE FDD B106     | ALL      | 25.7                  | 25.7                  | 24.6                  | 0.598                     | 0.767                     | 1.13            |
| Head                  | Port B | ANT 1   | FR-1 FDD n5      | ALL      | 25.7                  | 25.7                  | 23.6                  | 0.036                     | 0.059                     | 2.13            | Body                  | Port B | ANT 1   | FR-1 FDD n5      | ALL      | 25.7                  | 25.7                  | 24.8                  | 0.511                     | 0.634                     | 0.93            |
| Head                  | Port C | ANT 12  | FR-1 FDD n5      | ALL      | 25.1                  | 25.1                  | 23.3                  | 0.366                     | 0.558                     | 1.83            | Body                  | Port C | ANT 12  | FR-1 FDD n5      | ALL      | 25.1                  | 25.1                  | 22.6                  | 0.245                     | 0.440                     | 2.54            |
| Head                  | Port A | ANT 14  | FR-1 FDD n5      | ALL      | 25.7                  | 25.7                  | 23.2                  | 0.283                     | 0.509                     | 2.55            | Body                  | Port A | ANT 14  | FR-1 FDD n5      | ALL      | 25.7                  | 25.7                  | 23.8                  | 0.570                     | 0.708                     | 2.07            |
| Head                  | Port B | ANT 1   | FR-1 FDD n7      | ALL      | 22.7                  | 22.7                  | 21.0                  | 0.051                     | 0.075                     | 1.70            | Body                  | Port B | ANT 1   | FR-1 FDD n7      | ALL      | 22.7                  | 22.7                  | 21.2                  | 0.501                     | 0.708                     | 1.50            |
| Head                  | Port A | ANT 2   | FR-1 FDD n7      | ALL      | 25.7                  | 25.7                  | 24.0                  | 0.800                     | 1.189                     | 1.72            | Body                  | Port A | ANT 2   | FR-1 FDD n7      | ALL      | 25.7                  | 17.2                  | 16.0                  | 0.916                     | 1.200                     | 1.17            |
| Head                  | Port D | ANT 3   | FR-1 FDD n7      | ALL      | 23.2                  | 23.2                  | 21.5                  | 0.042                     | 0.062                     | 1.67            | Body                  | Port D | ANT 3   | FR-1 FDD n7      | ALL      | 23.2                  | 23.2                  | 21.8                  | 0.889                     | 1.187                     | 1.35            |
| Head                  | Port C | ANT 14  | FR-1 FDD n12     | ALL      | 25.5                  | 25.5                  | 24.5                  | 0.036                     | 0.054                     | 2.15            | Body                  | Port C | ANT 14  | FR-1 FDD n12     | ALL      | 25.5                  | 25.5                  | 24.3                  | 0.745                     | 1.171                     | 2.07            |
| Head                  | Port B | ANT 1   | FR-1 FDD n12     | ALL      | 25.7                  | 25.7                  | 24.8                  | 0.034                     | 0.042                     | 0.94            | Body                  | Port B | ANT 1   | FR-1 FDD n12     | ALL      | 25.7                  | 24.3                  | 0.315                 | 0.431                     | 1.38                      |                 |
| Head                  | Port C | ANT 12  | FR-1 FDD n12     | ALL      | 25.4                  | 25.4                  | 22.1                  | 0.212                     | 0.455                     | 3.31            | Body                  | Port C | ANT 12  | FR-1 FDD n12     | ALL      | 25.4                  | 25.4                  | 23.4                  | 0.397                     | 0.626                     | 1.98            |
| Head                  | Port A | ANT 14  | FR-1 FDD n12     | ALL      | 25.7                  | 25.7                  | 24.0                  | 0.214                     | 0.318                     | 1.71            | Body                  | Port A | ANT 14  | FR-1 FDD n12     | ALL      | 25.7                  | 25.7                  | 24.2                  | 0.782                     | 1.105                     | 1.50            |
| Head                  | Port B | ANT 1   | FR-1 FDD n14     | ALL      | 25.7                  | 25.7                  | 23.7                  | 0.047                     | 0.075                     | 2.04            | Body                  | Port B | ANT 1   | FR-1 FDD n14     | ALL      | 25.7                  | 25.7                  | 24.6                  | 0.535                     | 0.683                     | 1.05            |
| Head                  | Port C | ANT 12  | FR-1 FDD n14     | ALL      | 25.1                  | 25.1                  | 22.2                  | 0.243                     | 0.476                     | 2.92            | Body                  | Port C | ANT 12  | FR-1 FDD n14     | ALL      | 25.1                  | 25.1                  | 23.0                  | 0.356                     | 0.578                     | 2.11            |
| Head                  | Port A | ANT 14  | FR-1 FDD n14     | ALL      | 25.7                  | 25.7                  | 23.5                  | 0.185                     | 0.304                     | 2.16            | Body                  | Port A | ANT 14  | FR-1 FDD n14     | ALL      | 25.7                  | 25.7                  | 24.3                  | 0.817                     | 1.131                     | 1.41            |
| Head                  | Port B | ANT 1   | FR-1 FDD n25     | ALL      | 23.7                  | 23.7                  | 22.0                  | 0.233                     | 0.343                     | 1.99            | Body                  | Port B | ANT 1   | FR-1 FDD n25     | ALL      | 23.7                  | 23.7                  | 21.9                  | 0.951                     | 1.200                     | 1.50            |
| Head                  | Port A | ANT 2   | FR-1 FDD n25     | ALL      | 25.7                  | 23.4                  | 21.6                  | 0.794                     | 1.200                     | 1.80            | Body                  | Port A | ANT 2   | FR-1 FDD n25     | ALL      | 25.7                  | 17.7                  | 16.1                  | 0.827                     | 1.200                     | 1.62            |
| Head                  | Port D | ANT 3   | FR-1 FDD n25     | ALL      | 24.2                  | 24.2                  | 22.5                  | 0.096                     | 0.142                     | 1.67            | Body                  | Port D | ANT 3   | FR-1 FDD n25     | ALL      | 24.2                  | 21.3                  | 20.0                  | 0.894                     | 1.200                     | 1.28            |
| Head                  | Port C | ANT 14  | FR-1 FDD n25     | ALL      | 25.5                  | 25.5                  | 24.4                  | 0.193                     | 0.290                     | 1.12            | Body                  | Port C | ANT 14  | FR-1 FDD n25     | ALL      | 25.5                  | 23.0                  | 21.6                  | 0.876                     | 1.200                     | 1.37            |
| Head                  | Port B | ANT 1   | FR-1 FDD n26     | ALL      | 25.7                  | 25.7                  | 24.8                  | 0.063                     | 0.077                     | 0.86            | Body                  | Port B | ANT 1   | FR-1 FDD n26     | ALL      | 25.7                  | 25.7                  | 23.9                  | 0.255                     | 0.382                     | 1.76            |
| Head                  | Port C | ANT 12  | FR-1 FDD n26     | ALL      | 25.1                  | 25.1                  | 23.0                  | 0.390                     | 0.640                     | 2.15            | Body                  | Port C | ANT 12  | FR-1 FDD n26     | ALL      | 25.1                  | 25.1                  | 22.5                  | 0.321                     | 0.580                     | 2.57            |
| Head                  | Port A | ANT 14  | FR-1 FDD n26     | ALL      | 25.7                  | 25.7                  | 23.6                  | 0.230                     | 0.371                     | 2.07            | Body                  | Port A | ANT 14  | FR-1 FDD n26     | ALL      | 25.7                  | 25.7                  | 24.0                  | 0.794                     | 1.177                     | 1.71            |
| Head                  | Port B | ANT 1   | FR-1 FDD n30     | ALL      | 22.7                  | 22.7                  | 20.5                  | 0.075                     | 0.121                     | 2.21            | Body                  | Port B | ANT 1   | FR-1 FDD n30     | ALL      | 22.7                  | 22.7                  | 21.0                  | 0.591                     | 0.865                     | 1.75            |
| Head                  | Port A | ANT 2   | FR-1 FDD n30     | ALL      | 25.0                  | 23.8                  | 22.5                  | 0.888                     | 1.200                     | 1.31            | Body                  | Port A | ANT 2   | FR-1 FDD n30     | ALL      | 25.0                  | 15.6                  | 14.5                  | 0.971                     | 1.200                     | 0.92            |
| Head                  | Port D | ANT 3   | FR-1 FDD n30     | ALL      | 23.7                  | 23.7                  | 22.4                  | 0.069                     | 0.076                     | 1.29            | Body                  | Port D | ANT 3   | FR-1 FDD n30     | ALL      | 23.7                  | 20.4                  | 18.9                  | 0.844                     | 1.200                     | 1.53            |
| Head                  | Port C | ANT 14  | FR-1 FDD n30     | ALL      | 24.9                  | 24.9                  | 22.5                  | 0.015                     | 0.028                     | 2.37            | Body                  | Port C | ANT 14  | FR-1 FDD n30     | ALL      | 24.9                  | 23.6                  | 21.2                  | 0.696                     | 1.200                     | 2.37            |
| Head                  | Port B | ANT 1   | FR-1 TDD n41 PC3 | ALL      | 25.7                  | 25.7                  | 23.1                  | 0.231                     | 0.420                     | 2.60            | Body                  | Port B | ANT 1   | FR-1 TDD n41 PC3 | ALL      | 25.7                  | 25.2                  | 23.9                  | 0.888                     | 1.200                     | 1.31            |
| Head                  | Port A | ANT 2   | FR-1 TDD n41 PC3 | ALL      | 25.7                  | 25.7                  | 23.8                  | 0.736                     | 1.129                     | 1.86            | Body                  | Port A | ANT 2   | FR-1 TDD n41 PC3 | ALL      | 25.7                  | 17.6                  | 16.2                  | 0.866                     | 1.200                     | 1.42            |
| Head                  | Port D | ANT 3   | FR-1 TDD n41 PC3 | ALL      | 25.7                  | 25.7                  | 23.1                  | 0.094                     | 0.171                     | 2.60            | Body                  | Port D | ANT 3   | FR-1 TDD n41 PC3 | ALL      | 25.7                  | 20.5                  | 18.4                  | 0.740                     | 1.200                     | 2.10            |
| Head                  | Port C | ANT 14  | FR-1 TDD n41 PC3 | ALL      | 25.7                  | 25.7                  | 23.8                  | 0.071                     | 0.106                     | 1.88            | Body                  | Port C | ANT 14  | FR-1 TDD n41 PC3 | ALL      | 25.7                  | 17.0                  | 15.0                  | 0.751                     | 1.200                     | 2.04            |
| Head                  | Port A | ANT 2   | FR-1 TDD n48     | ALL      | 26.0                  | 26.0                  | 25.6                  | 0.753                     | 0.834                     | 0.45            | Body                  | Port A | ANT 2   | FR-1 TDD n48     | ALL      | 26.0                  | 20.1                  | 18.6                  | 0.855                     | 1.200                     | 1.47            |
| Head                  | Port D | ANT 3   | FR-1 TDD n48     | ALL      | 26.0                  | 26.0                  | 24.3                  | 0.075                     | 0.110                     | 1.67            | Body                  | Port D | ANT 3   | FR-1 TDD n48     | ALL      | 26.0                  | 22.9                  | 21.1                  | 0.795                     | 1.200                     | 1.79            |
| Head                  | Port C | ANT 4   | FR-1 TDD n48     | ALL      | 25.2                  | 25.2                  | 24.7                  | 0.627                     | 0.708                     | 0.53            | Body                  | Port C | ANT 4   | FR-1 TDD n48     | ALL      | 25.2                  | 19.1                  | 17.5                  | 0.827                     | 1.200                     | 1.62            |
| Head                  | Port B | ANT 7   | FR-1 TDD n48     | ALL      | 25.1                  | 25.1                  | 23.8                  | 0.162                     | 0.218                     | 1.29            | Body                  | Port B | ANT 7   | FR-1 TDD n48     | ALL      | 25.1                  | 21.9                  | 20.5                  | 0.862                     | 1.200                     | 1.44            |
| Head                  | Port B | ANT 1   | FR-1 TDD n53     | ALL      | 20.7                  | 20.7                  | 19.7                  | 0.030                     | 0.038                     | 1.02            | Body                  | Port B | ANT 1   | FR-1 TDD n53     | ALL      | 20.7</                |                       |                       |                           |                           |                 |

| RF Exposure Condition | Antenna | Technology        | Bandwidth (MHz) | Channel | Frequency (MHz) | P <sub>Max</sub> (dBm) | P <sub>Limit</sub> (dBm) | SAR <sub>Measured</sub> (W/kg) | SAR <sub>Reported</sub> (W/kg) | RF Exposure Condition | Antenna | Technology        | Bandwidth (MHz) | Channel | Frequency (MHz) | P <sub>Max</sub> (dBm) | P <sub>Limit</sub> (dBm) | SAR <sub>Measured</sub> (W/kg) | SAR <sub>Reported</sub> (W/kg) |
|-----------------------|---------|-------------------|-----------------|---------|-----------------|------------------------|--------------------------|--------------------------------|--------------------------------|-----------------------|---------|-------------------|-----------------|---------|-----------------|------------------------|--------------------------|--------------------------------|--------------------------------|
| Head                  | ANT 3   | Wi-Fi 2.4 GHz     | 20 MHz          | 6       | 2437            | 21.2                   | 21.2                     | 0.040                          | 1.200                          | Body                  | ANT 3   | Wi-Fi 2.4 GHz     | 20 MHz          | 6       | 2437            | 21.2                   | 20.3                     | 0.781                          | 1.055                          |
| Head                  | ANT 5   | Wi-Fi U-NII 2C    | 80 MHz          | 122     | 5610            | 20.4                   | 20.4                     | 0.022                          | 1.200                          | Body                  | ANT 3   | Wi-Fi 2.4 GHz     | 20 MHz          | 11      | 2462            | 21.2                   | 20.3                     | 0.678                          | 0.916                          |
| Head                  | ANT 5   | Wi-Fi U-NII 3     | 80 MHz          | 155     | 5775            | 20.4                   | 20.4                     | 0.053                          | 1.200                          | Body                  | ANT 5   | Wi-Fi U-NII 2A    | 40 MHz          | 54      | 5270            | 20.4                   | 20.4                     | 0.759                          | 1.200                          |
| Head                  | ANT 5   | Wi-Fi U-NII 7     | 160 MHz         | 143     | 6665            | 14.0                   | 19.6                     | 0.002                          | 0.002                          | Body                  | ANT 5   | Wi-Fi U-NII 2A    | 40 MHz          | 62      | 5310            | 17.5                   | 17.5                     | 0.351                          | 1.200                          |
| Head                  | ANT 4   | Wi-Fi 2.4 GHz     | 20 MHz          | 6       | 2437            | 21.2                   | 21.2                     | 0.240                          | 1.200                          | Body                  | ANT 5   | Wi-Fi U-NII 2C    | 80 MHz          | 122     | 5610            | 20.4                   | 16.5                     | 0.807                          | 1.153                          |
| Head                  | ANT 6   | Wi-Fi U-NII 2A    | 40 MHz          | 54      | 5270            | 20.6                   | 20.6                     | 0.001                          | 1.200                          | Body                  | ANT 5   | Wi-Fi U-NII 2C    | 80 MHz          | 138     | 5690            | 20.4                   | 16.5                     | 0.829                          | 1.184                          |
| Head                  | ANT 6   | Wi-Fi U-NII 6     | 160 MHz         | 111     | 6505            | 19.8                   | 13.5                     | 0.001                          | 0.002                          | Body                  | ANT 5   | Wi-Fi U-NII 3     | 80 MHz          | 155     | 5775            | 20.4                   | 14.3                     | 0.794                          | 1.174                          |
| Head                  | ANT 3   | Bluetooth 2.4 GHz | N/A             | N/A     | N/A             | 21.0                   | 21.0                     | 0.048                          | 1.200                          | Body                  | ANT 5   | Wi-Fi U-NII 5     | 160 MHz         | 47      | 6185            | 19.6                   | 13.0                     | 0.562                          | 0.703                          |
| Head                  | ANT 5   | NB U-NII 3        | N/A             | N/A     | N/A             | 19.8                   | 19.8                     | 0.042                          | 1.200                          | Body                  | ANT 5   | Wi-Fi U-NII 5     | 160 MHz         | 79      | 6345            | 19.6                   | 13.5                     | 0.602                          | 0.845                          |
| Head                  | ANT 4   | Bluetooth 2.4 GHz | N/A             | N/A     | N/A             | 20.5                   | 20.5                     | 0.228                          | 1.200                          | Body                  | ANT 5   | Wi-Fi U-NII 6     | 160 MHz         | 111     | 6505            | 15.8                   | 12.5                     | 0.567                          | 0.726                          |
| Head                  | ANT 3   | 802.15.4          | N/A             | N/A     | N/A             | 20.5                   | 22.5                     | 0.052                          | 0.069                          | Body                  | ANT 5   | Wi-Fi U-NII 7     | 160 MHz         | 143     | 6665            | 19.6                   | 14.0                     | 0.880                          | 1.052                          |
| Head                  | ANT 4   | 802.15.4          | N/A             | N/A     | N/A             | 21.0                   | 26.0                     | 0.246                          | 0.349                          | Body                  | ANT 5   | Wi-Fi U-NII 7     | 160 MHz         | 175     | 6825            | 15.5                   | 14.0                     | 0.772                          | 0.966                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 5   | Wi-Fi U-NII 8     | 160 MHz         | 207     | 6985            | 18.0                   | 14.3                     | 0.843                          | 1.144                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 4   | Wi-Fi 2.4 GHz     | 20 MHz          | 1       | 2412            | 20.5                   | 19.0                     | 0.849                          | 1.187                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 4   | Wi-Fi 2.4 GHz     | 20 MHz          | 6       | 2437            | 21.2                   | 19.0                     | 0.823                          | 1.151                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 6   | Wi-Fi U-NII 2A    | 160 MHz         | 50      | 5250            | 16.5                   | 16.0                     | 0.601                          | 0.926                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 6   | Wi-Fi U-NII 2C    | 80 MHz          | 122     | 5610            | 20.6                   | 15.8                     | 0.681                          | 1.030                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 6   | Wi-Fi U-NII 2C    | 80 MHz          | 138     | 5690            | 20.6                   | 15.8                     | 0.714                          | 1.056                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 6   | Wi-Fi U-NII 3     | 80 MHz          | 155     | 5775            | 20.6                   | 15.8                     | 0.673                          | 1.018                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 6   | Wi-Fi U-NII 5     | 160 MHz         | 15      | 6025            | 19.8                   | 14.8                     | 0.487                          | 0.661                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 6   | Wi-Fi U-NII 6     | 160 MHz         | 111     | 6505            | 19.8                   | 13.5                     | 0.302                          | 0.498                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 6   | Wi-Fi U-NII 7     | 160 MHz         | 143     | 6665            | 19.8                   | 13.5                     | 0.259                          | 0.427                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 6   | Wi-Fi U-NII 8     | 160 MHz         | 207     | 6985            | 18.8                   | 13.3                     | 0.320                          | 0.528                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 3   | Bluetooth 2.4 GHz | N/A             | N/A     | N/A             | 21.0                   | 19.3                     | 0.986                          | 1.024                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 5   | NB U-NII 1        | N/A             | N/A     | N/A             | 14.5                   | 14.5                     | 0.279                          | 1.200                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 5   | NB U-NII 3        | N/A             | N/A     | N/A             | 19.8                   | 16.0                     | 0.676                          | 1.132                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 5   | NB U-NII 5        | N/A             | Mid     | 6263            | 3.5                    | 3.5                      | 0.018                          | 1.200                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 4   | Bluetooth 2.4 GHz | N/A             | N/A     | N/A             | 20.5                   | 20.5                     | 0.864                          | 1.200                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 6   | NB U-NII 1        | N/A             | N/A     | N/A             | 14.3                   | 14.3                     | 0.526                          | 1.200                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 6   | NB U-NII 3        | N/A             | N/A     | N/A             | 19.5                   | 13.5                     | 0.742                          | 1.186                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 6   | NB U-NII 5        | N/A             | Mid     | 6263            | -0.3                   | -0.3                     | 0.028                          | 1.200                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 3   | 802.15.4          | N/A             | N/A     | N/A             | 20.5                   | 20.5                     | 0.870                          | 1.200                          |
|                       |         |                   |                 |         |                 |                        |                          |                                |                                | Body                  | ANT 4   | 802.15.4          | N/A             | N/A     | N/A             | 21.0                   | 18.5                     | 0.721                          | 0.978                          |

Table 2-6: SAR Characterization (State B)

| RF Exposure Condition | Port   | Antenna | Technology              | Channel  | P <sub>max</sub> (dBm) | P <sub>1dBm</sub> (dBm) | P <sub>1dBm, nom</sub> (dBm) | SAR <sub>measured</sub> (W/kg) | SAR <sub>reported</sub> (W/kg) | Uncertainty (%) |
|-----------------------|--------|---------|-------------------------|----------|------------------------|-------------------------|------------------------------|--------------------------------|--------------------------------|-----------------|
| Body                  | Port B | ANT 1   | GSM 850 GMSK 2 Slot(s)  | ALL      | 31.0                   | 31.0                    | 29.9                         | 0.515                          | 0.664                          | 1.10            |
| Body                  | Port A | ANT 14  | GSM 850 GMSK 2 Slot(s)  | ALL      | 32.5                   | 32.5                    | 31.0                         | 0.688                          | 0.964                          | 1.46            |
| Body                  | Port B | ANT 1   | GSM 1900 GMSK 2 Slot(s) | ALL      | 28.0                   | 28.0                    | 27.0                         | 0.851                          | 1.071                          | 1.00            |
| Body                  | Port A | ANT 2   | GSM 1900 GMSK 2 Slot(s) | ALL      | 31.0                   | 23.5                    | 22.4                         | 0.922                          | 1.200                          | 1.15            |
| Body                  | Port D | ANT 3   | GSM 1900 GMSK 2 Slot(s) | ALL      | 28.5                   | 27.3                    | 25.6                         | 0.808                          | 1.200                          | 1.72            |
| Body                  | Port C | ANT 14  | GSM 1900 GMSK 2 Slot(s) | ALL      | 30.3                   | 29.5                    | 28.4                         | 0.939                          | 1.200                          | 1.07            |
| Body                  | Port B | ANT 1   | W-CDMA B2               | ALL      | 23.7                   | 22.2                    | 21.2                         | 0.960                          | 1.200                          | 0.97            |
| Body                  | Port A | ANT 2   | W-CDMA B2               | ALL      | 25.7                   | 16.7                    | 15.5                         | 0.900                          | 1.200                          | 1.25            |
| Body                  | Port D | ANT 3   | W-CDMA B2               | ALL      | 24.2                   | 20.8                    | 19.1                         | 0.808                          | 1.200                          | 1.72            |
| Body                  | Port C | ANT 14  | W-CDMA B2               | ALL      | 25.5                   | 23.5                    | 22.3                         | 0.919                          | 1.200                          | 1.16            |
| Body                  | Port B | ANT 1   | W-CDMA B4               | ALL      | 24.7                   | 22.4                    | 21.3                         | 0.937                          | 1.200                          | 1.07            |
| Body                  | Port A | ANT 2   | W-CDMA B4               | ALL      | 25.7                   | 17.7                    | 16.6                         | 0.941                          | 1.200                          | 1.05            |
| Body                  | Port D | ANT 3   | W-CDMA B4               | ALL      | 25.2                   | 21.5                    | 18.7                         | 0.633                          | 1.200                          | 2.78            |
| Body                  | Port C | ANT 14  | W-CDMA B4               | ALL      | 25.5                   | 24.0                    | 22.3                         | 0.820                          | 1.200                          | 1.66            |
| Body                  | Port B | ANT 1   | W-CDMA B5               | ALL      | 25.7                   | 25.7                    | 24.6                         | 0.872                          | 1.125                          | 1.10            |
| Body                  | Port A | ANT 14  | W-CDMA B5               | ALL      | 25.7                   | 25.7                    | 24.2                         | 0.674                          | 0.944                          | 1.46            |
| Body                  | Port B | ANT 1   | LTE FDD B5              | ALL      | 25.7                   | 25.7                    | 24.8                         | 0.936                          | 1.150                          | 0.90            |
| Body                  | Port C | ANT 12  | LTE FDD B5              | ALL      | 25.1                   | 25.1                    | 24.2                         | 0.314                          | 0.383                          | 0.85            |
| Body                  | Port A | ANT 14  | LTE FDD B5              | ALL      | 25.7                   | 25.7                    | 24.5                         | 0.723                          | 0.957                          | 1.22            |
| Body                  | Port B | ANT 1   | LTE FDD B7              | Low      | 22.7                   | 22.7                    | 21.5                         | 0.910                          | 1.192                          | 1.17            |
| Body                  | Port B | ANT 1   | LTE FDD B7              | Mid      | 22.7                   | 22.7                    | 21.5                         | 0.910                          | 1.192                          | 1.17            |
| Body                  | Port B | ANT 1   | LTE FDD B7              | High     | 22.7                   | 22.7                    | 21.5                         | 0.910                          | 1.192                          | 1.17            |
| Body                  | Port A | ANT 2   | LTE FDD B7              | Low      | 25.7                   | 17.7                    | 16.5                         | 0.912                          | 1.200                          | 1.19            |
| Body                  | Port A | ANT 2   | LTE FDD B7              | Mid      | 25.7                   | 17.8                    | 16.6                         | 0.912                          | 1.200                          | 1.19            |
| Body                  | Port A | ANT 2   | LTE FDD B7              | High     | 25.7                   | 17.7                    | 16.5                         | 0.912                          | 1.200                          | 1.19            |
| Body                  | Port D | ANT 3   | LTE FDD B7              | Low      | 23.2                   | 23.2                    | 21.6                         | 0.811                          | 1.183                          | 1.64            |
| Body                  | Port D | ANT 3   | LTE FDD B7              | Mid      | 23.2                   | 23.2                    | 21.6                         | 0.811                          | 1.183                          | 1.64            |
| Body                  | Port D | ANT 3   | LTE FDD B7              | High     | 23.2                   | 23.2                    | 21.6                         | 0.811                          | 1.183                          | 1.64            |
| Body                  | Port C | ANT 14  | LTE FDD B7              | Low      | 25.5                   | 18.7                    | 16.5                         | 0.731                          | 1.200                          | 2.15            |
| Body                  | Port C | ANT 14  | LTE FDD B7              | Mid      | 25.5                   | 18.4                    | 16.2                         | 0.731                          | 1.200                          | 2.15            |
| Body                  | Port C | ANT 14  | LTE FDD B7              | High     | 25.5                   | 18.3                    | 16.1                         | 0.731                          | 1.200                          | 2.15            |
| Body                  | Port B | ANT 1   | LTE FDD B12             | ALL      | 25.7                   | 25.7                    | 24.8                         | 0.608                          | 0.755                          | 0.94            |
| Body                  | Port C | ANT 12  | LTE FDD B12             | ALL      | 25.4                   | 25.4                    | 24.4                         | 0.359                          | 0.453                          | 1.02            |
| Body                  | Port A | ANT 14  | LTE FDD B12             | ALL      | 25.7                   | 25.7                    | 24.6                         | 0.676                          | 0.877                          | 1.13            |
| Body                  | Port B | ANT 1   | LTE FDD B13             | ALL      | 25.7                   | 25.7                    | 24.3                         | 0.714                          | 0.986                          | 1.40            |
| Body                  | Port C | ANT 12  | LTE FDD B13             | ALL      | 25.4                   | 25.4                    | 23.9                         | 0.279                          | 0.390                          | 1.46            |
| Body                  | Port A | ANT 14  | LTE FDD B13             | ALL      | 25.7                   | 25.7                    | 24.3                         | 0.847                          | 1.169                          | 1.40            |
| Body                  | Port B | ANT 1   | LTE FDD B14             | ALL      | 25.7                   | 25.7                    | 24.4                         | 0.699                          | 0.935                          | 1.26            |
| Body                  | Port C | ANT 12  | LTE FDD B14             | ALL      | 25.1                   | 25.1                    | 24.1                         | 0.279                          | 0.353                          | 1.03            |
| Body                  | Port A | ANT 14  | LTE FDD B14             | ALL      | 25.7                   | 25.7                    | 24.6                         | 0.915                          | 1.168                          | 1.06            |
| Body                  | Port C | ANT 12  | LTE FDD B14             | ALL      | 25.1                   | 25.1                    | 24.1                         | 0.279                          | 0.353                          | 1.03            |
| Body                  | Port A | ANT 14  | LTE FDD B14             | ALL      | 25.7                   | 25.7                    | 24.6                         | 0.915                          | 1.168                          | 1.06            |
| Body                  | Port B | ANT 1   | LTE FDD B25             | Low      | 23.7                   | 22.7                    | 21.7                         | 0.954                          | 1.200                          | 1.00            |
| Body                  | Port B | ANT 1   | LTE FDD B25             | Mid      | 23.7                   | 22.4                    | 21.4                         | 0.954                          | 1.200                          | 1.00            |
| Body                  | Port B | ANT 1   | LTE FDD B25             | High     | 23.7                   | 22.0                    | 21.0                         | 0.954                          | 1.200                          | 1.00            |
| Body                  | Port A | ANT 2   | LTE FDD B25             | Low      | 25.7                   | 17.5                    | 16.4                         | 0.922                          | 1.200                          | 1.15            |
| Body                  | Port A | ANT 2   | LTE FDD B25             | Mid      | 25.7                   | 18.0                    | 16.9                         | 0.922                          | 1.200                          | 1.15            |
| Body                  | Port A | ANT 2   | LTE FDD B25             | High     | 25.7                   | 17.5                    | 16.4                         | 0.922                          | 1.200                          | 1.15            |
| Body                  | Port D | ANT 3   | LTE FDD B25             | Low      | 24.2                   | 21.4                    | 19.7                         | 0.808                          | 1.200                          | 1.72            |
| Body                  | Port D | ANT 3   | LTE FDD B25             | Mid      | 24.2                   | 21.3                    | 19.6                         | 0.808                          | 1.200                          | 1.72            |
| Body                  | Port D | ANT 3   | LTE FDD B25             | High     | 24.2                   | 21.3                    | 19.6                         | 0.808                          | 1.200                          | 1.72            |
| Body                  | Port C | ANT 14  | LTE FDD B25             | Low      | 25.5                   | 23.5                    | 22.4                         | 0.939                          | 1.200                          | 1.07            |
| Body                  | Port C | ANT 14  | LTE FDD B25             | Mid      | 25.5                   | 23.6                    | 22.5                         | 0.939                          | 1.200                          | 1.07            |
| Body                  | Port C | ANT 14  | LTE FDD B25             | High     | 25.5                   | 23.6                    | 22.5                         | 0.939                          | 1.200                          | 1.07            |
| Body                  | Port B | ANT 1   | LTE FDD B26             | ALL      | 25.7                   | 25.7                    | 24.7                         | 0.613                          | 0.768                          | 0.97            |
| Body                  | Port C | ANT 12  | LTE FDD B26             | ALL      | 25.1                   | 25.1                    | 23.8                         | 0.260                          | 0.350                          | 1.30            |
| Body                  | Port A | ANT 14  | LTE FDD B26             | ALL      | 25.7                   | 25.7                    | 24.3                         | 0.705                          | 0.984                          | 1.45            |
| Body                  | Port B | ANT 1   | LTE FDD B30             | ALL      | 22.7                   | 22.7                    | 21.5                         | 0.787                          | 1.049                          | 1.25            |
| Body                  | Port A | ANT 2   | LTE FDD B30             | ALL      | 24.7                   | 17.8                    | 17.0                         | 0.990                          | 1.200                          | 0.83            |
| Body                  | Port D | ANT 3   | LTE FDD B30             | ALL      | 23.7                   | 20.9                    | 19.5                         | 0.869                          | 1.200                          | 1.40            |
| Body                  | Port C | ANT 14  | LTE FDD B30             | ALL      | 24.9                   | 22.7                    | 20.8                         | 0.774                          | 1.200                          | 1.91            |
| Body                  | Port B | ANT 1   | LTE TDD B41 PC3         | Low      | 25.7                   | 25.0                    | 23.8                         | 0.908                          | 1.200                          | 1.21            |
| Body                  | Port B | ANT 1   | LTE TDD B41 PC3         | Low-Mid  | 25.7                   | 25.0                    | 23.8                         | 0.908                          | 1.200                          | 1.21            |
| Body                  | Port B | ANT 1   | LTE TDD B41 PC3         | Mid      | 25.7                   | 24.1                    | 22.9                         | 0.908                          | 1.200                          | 1.21            |
| Body                  | Port B | ANT 1   | LTE TDD B41 PC3         | Mid-High | 25.7                   | 24.0                    | 22.8                         | 0.908                          | 1.200                          | 1.21            |
| Body                  | Port B | ANT 1   | LTE TDD B41 PC3         | High     | 25.7                   | 24.9                    | 23.7                         | 0.908                          | 1.200                          | 1.21            |
| Body                  | Port A | ANT 2   | LTE TDD B41 PC3         | Low      | 25.7                   | 19.7                    | 18.4                         | 0.889                          | 1.200                          | 1.30            |
| Body                  | Port A | ANT 2   | LTE TDD B41 PC3         | Low-Mid  | 25.7                   | 19.9                    | 18.6                         | 0.889                          | 1.200                          | 1.30            |
| Body                  | Port A | ANT 2   | LTE TDD B41 PC3         | Mid      | 25.7                   | 19.6                    | 18.3                         | 0.889                          | 1.200                          | 1.30            |
| Body                  | Port A | ANT 2   | LTE TDD B41 PC3         | Mid-High | 25.7                   | 20.3                    | 19.0                         | 0.889                          | 1.200                          | 1.30            |
| Body                  | Port A | ANT 2   | LTE TDD B41 PC3         | High     | 25.7                   | 20.4                    | 19.1                         | 0.889                          | 1.200                          | 1.30            |
| Body                  | Port D | ANT 3   | LTE TDD B41 PC3         | Low      | 25.7                   | 25.7                    | 23.8                         | 0.775                          | 1.197                          | 1.89            |
| Body                  | Port D | ANT 3   | LTE TDD B41 PC3         | Low-Mid  | 25.7                   | 23.0                    | 21.1                         | 0.777                          | 1.200                          | 1.89            |
| Body                  | Port D | ANT 3   | LTE TDD B41 PC3         | Mid      | 25.7                   | 25.2                    | 23.3                         | 0.777                          | 1.200                          | 1.89            |
| Body                  | Port D | ANT 3   | LTE TDD B41 PC3         | Mid-High | 25.7                   | 25.4                    | 23.5                         | 0.777                          | 1.200                          | 1.89            |
| Body                  | Port D | ANT 3   | LTE TDD B41 PC3         | High     | 25.7                   | 25.3                    | 23.4                         | 0.777                          | 1.200                          | 1.89            |
| Body                  | Port C | ANT 14  | LTE TDD B41 PC3         | Low      | 25.7                   | 20.8                    | 18.6                         | 0.722                          | 1.200                          | 2.21            |
| Body                  | Port C | ANT 14  | LTE TDD B41 PC3         | Low-Mid  | 25.7                   | 20.2                    | 18.0                         | 0.722                          | 1.200                          | 2.21            |
| Body                  | Port C | ANT 14  | LTE TDD B41 PC3         | Mid      | 25.7                   | 18.7                    | 16.5                         | 0.722                          | 1.200                          | 2.21            |
| Body                  | Port C | ANT 14  | LTE TDD B41 PC3         | Mid-High | 25.7                   | 18.0                    | 15.8                         | 0.722                          | 1.200                          | 2.21            |
| Body                  | Port C | ANT 14  | LTE TDD B41 PC3         | High     | 25.7                   | 18.4                    | 16.2                         | 0.722                          | 1.200                          | 2.21            |
| Body                  | Port A | ANT 2   | LTE TDD B48             | Low      | 24.2                   | 21.7                    | 20.0                         | 0.810                          | 1.200                          | 1.71            |
| Body                  | Port A | ANT 2   | LTE TDD B48             | Low-Mid  | 24.2                   | 21.3                    | 19.6                         | 0.810                          | 1.200                          | 1.71            |
| Body                  | Port A | ANT 2   | LTE TDD B48             | Mid-High | 24.2                   | 21.2                    | 19.5                         | 0.810                          | 1.200                          | 1.71            |
| Body                  | Port A | ANT 2   | LTE TDD B48             | High     | 24.2                   | 20.8                    | 19.1                         | 0.810                          | 1.200                          | 1.71            |
| Body                  | Port D | ANT 3   | LTE TDD B48             | Low      | 26.0                   | 25.8                    | 23.8                         | 0.762                          | 1.200                          | 1.97            |
| Body                  | Port D | ANT 3   | LTE TDD B48             | Low-Mid  | 26.0                   | 25.9                    | 23.9                         | 0.762                          | 1.200                          | 1.97            |
| Body                  | Port D | ANT 3   | LTE TDD B48             | Mid-High | 26.0                   | 25.6                    | 23.6                         | 0.762                          | 1.200                          | 1.97            |
| Body                  | Port D | ANT 3   | LTE TDD B48             | High     | 26.0                   | 25.5                    | 23.5                         | 0.762                          | 1.200                          | 1.97            |

| RF Exposure Condition | Port   | Antenna | Technology                 | Channel  | P <sub>Max</sub> (dBm) | P <sub>Limit</sub> (dBm) | P <sub>Limit, nom</sub> (dBm) | SAR <sub>Measured</sub> (W/kg) | SAR <sub>Reported</sub> (W/kg) | Uncertainty (±) |
|-----------------------|--------|---------|----------------------------|----------|------------------------|--------------------------|-------------------------------|--------------------------------|--------------------------------|-----------------|
| Body                  | Port C | ANT 4   | LTE TDD B48                | Low      | 23.2                   | 20.1                     | 18.6                          | 0.845                          | 1.200                          | 1.52            |
| Body                  | Port C | ANT 4   | LTE TDD B48                | Low-Mid  | 23.2                   | 20.3                     | 18.8                          | 0.845                          | 1.200                          | 1.52            |
| Body                  | Port C | ANT 4   | LTE TDD B48                | Mid-High | 23.2                   | 20.4                     | 18.9                          | 0.845                          | 1.200                          | 1.52            |
| Body                  | Port C | ANT 4   | LTE TDD B48                | High     | 23.2                   | 18.1                     | 16.6                          | 0.845                          | 1.200                          | 1.52            |
| Body                  | Port B | ANT 7   | LTE TDD B48                | Low      | 22.1                   | 22.1                     | 20.6                          | 0.829                          | 1.158                          | 1.45            |
| Body                  | Port B | ANT 7   | LTE TDD B48                | Low-Mid  | 22.1                   | 22.1                     | 20.6                          | 0.829                          | 1.158                          | 1.45            |
| Body                  | Port B | ANT 7   | LTE TDD B48                | Mid-High | 22.1                   | 22.1                     | 20.6                          | 0.829                          | 1.158                          | 1.45            |
| Body                  | Port B | ANT 7   | LTE TDD B48                | High     | 22.1                   | 22.1                     | 20.6                          | 0.829                          | 1.158                          | 1.45            |
| Body                  | Port B | ANT 1   | LTE TDD B53                | ALL      | 20.7                   | 20.7                     | 19.5                          | 0.304                          | 0.400                          | 1.19            |
| Body                  | Port A | ANT 2   | LTE TDD B53                | ALL      | 20.7                   | 19.7                     | 18.9                          | 1.001                          | 1.200                          | 0.79            |
| Body                  | Port C | ANT 14  | LTE TDD B53                | ALL      | 20.7                   | 19.9                     | 18.3                          | 0.823                          | 1.200                          | 1.64            |
| Body                  | Port B | ANT 1   | LTE FDD B66                | Low      | 24.7                   | 22.8                     | 21.8                          | 0.950                          | 1.200                          | 1.01            |
| Body                  | Port B | ANT 1   | LTE FDD B66                | Mid      | 24.7                   | 23.1                     | 22.1                          | 0.950                          | 1.200                          | 1.01            |
| Body                  | Port B | ANT 1   | LTE FDD B66                | High     | 24.7                   | 22.5                     | 21.5                          | 0.950                          | 1.200                          | 1.01            |
| Body                  | Port A | ANT 2   | LTE FDD B66                | Low      | 25.7                   | 18.1                     | 17.0                          | 0.941                          | 1.200                          | 1.05            |
| Body                  | Port A | ANT 2   | LTE FDD B66                | Mid      | 25.7                   | 17.9                     | 16.8                          | 0.941                          | 1.200                          | 1.05            |
| Body                  | Port A | ANT 2   | LTE FDD B66                | High     | 25.7                   | 18.1                     | 17.0                          | 0.941                          | 1.200                          | 1.05            |
| Body                  | Port D | ANT 3   | LTE FDD B66                | Low      | 25.2                   | 21.7                     | 19.2                          | 0.679                          | 1.200                          | 2.47            |
| Body                  | Port D | ANT 3   | LTE FDD B66                | Mid      | 25.2                   | 21.5                     | 19.0                          | 0.679                          | 1.200                          | 2.47            |
| Body                  | Port D | ANT 3   | LTE FDD B66                | High     | 25.2                   | 21.5                     | 19.0                          | 0.679                          | 1.200                          | 2.47            |
| Body                  | Port C | ANT 14  | LTE FDD B66                | Low      | 25.5                   | 24.3                     | 22.6                          | 0.820                          | 1.200                          | 1.66            |
| Body                  | Port C | ANT 14  | LTE FDD B66                | Mid      | 25.5                   | 24.7                     | 23.0                          | 0.820                          | 1.200                          | 1.66            |
| Body                  | Port C | ANT 14  | LTE FDD B66                | High     | 25.5                   | 24.1                     | 22.4                          | 0.820                          | 1.200                          | 1.66            |
| Body                  | Port B | ANT 1   | LTE FDD B71                | ALL      | 25.7                   | 25.7                     | 24.6                          | 0.732                          | 0.945                          | 1.11            |
| Body                  | Port C | ANT 12  | LTE FDD B71                | ALL      | 25.4                   | 25.4                     | 23.7                          | 0.503                          | 0.740                          | 1.68            |
| Body                  | Port A | ANT 14  | LTE FDD B71                | ALL      | 25.7                   | 25.7                     | 24.2                          | 0.811                          | 1.143                          | 1.49            |
| Body                  | Port B | ANT 1   | LTE FDD B106               | ALL      | 25.7                   | 25.7                     | 24.6                          | 0.822                          | 1.060                          | 1.11            |
| Body                  | Port C | ANT 12  | LTE FDD B106               | ALL      | 25.1                   | 25.1                     | 24.0                          | 0.207                          | 0.269                          | 1.13            |
| Body                  | Port A | ANT 14  | LTE FDD B106               | ALL      | 25.7                   | 25.7                     | 24.0                          | 0.462                          | 0.684                          | 1.70            |
| Body                  | Port B | ANT 1   | FR-1 FDD n5                | ALL      | 25.7                   | 25.7                     | 24.6                          | 0.757                          | 0.986                          | 1.15            |
| Body                  | Port C | ANT 12  | FR-1 FDD n5                | ALL      | 25.1                   | 25.1                     | 23.5                          | 0.208                          | 0.300                          | 1.60            |
| Body                  | Port A | ANT 14  | FR-1 FDD n5                | ALL      | 25.7                   | 25.7                     | 23.9                          | 0.654                          | 0.987                          | 1.79            |
| Body                  | Port B | ANT 1   | FR-1 FDD n7                | ALL      | 22.7                   | 22.7                     | 21.2                          | 0.837                          | 1.192                          | 1.54            |
| Body                  | Port A | ANT 2   | FR-1 FDD n7                | ALL      | 25.7                   | 17.6                     | 16.5                          | 0.939                          | 1.200                          | 1.07            |
| Body                  | Port D | ANT 3   | FR-1 FDD n7                | ALL      | 23.2                   | 23.2                     | 21.6                          | 0.814                          | 1.167                          | 1.56            |
| Body                  | Port C | ANT 14  | FR-1 FDD n7                | ALL      | 25.5                   | 18.4                     | 16.0                          | 0.692                          | 1.200                          | 2.39            |
| Body                  | Port B | ANT 1   | FR-1 FDD n12               | ALL      | 25.7                   | 25.7                     | 24.2                          | 0.847                          | 1.186                          | 1.46            |
| Body                  | Port C | ANT 12  | FR-1 FDD n12               | ALL      | 25.4                   | 25.4                     | 24.0                          | 0.217                          | 0.302                          | 1.44            |
| Body                  | Port A | ANT 14  | FR-1 FDD n12               | ALL      | 25.7                   | 25.7                     | 24.2                          | 0.678                          | 0.958                          | 1.50            |
| Body                  | Port B | ANT 1   | FR-1 FDD n14               | ALL      | 25.7                   | 25.7                     | 24.2                          | 0.647                          | 0.910                          | 1.48            |
| Body                  | Port C | ANT 12  | FR-1 FDD n14               | ALL      | 25.1                   | 25.1                     | 24.2                          | 0.190                          | 0.236                          | 0.93            |
| Body                  | Port A | ANT 14  | FR-1 FDD n14               | ALL      | 25.7                   | 25.7                     | 24.3                          | 0.803                          | 1.122                          | 1.45            |
| Body                  | Port B | ANT 1   | FR-1 FDD n25               | ALL      | 23.7                   | 22.7                     | 21.3                          | 0.872                          | 1.200                          | 1.39            |
| Body                  | Port A | ANT 2   | FR-1 FDD n25               | ALL      | 25.7                   | 17.0                     | 15.6                          | 0.861                          | 1.200                          | 1.44            |
| Body                  | Port D | ANT 3   | FR-1 FDD n25               | ALL      | 24.2                   | 21.2                     | 19.6                          | 0.824                          | 1.200                          | 1.63            |
| Body                  | Port C | ANT 14  | FR-1 FDD n25               | ALL      | 25.5                   | 23.5                     | 21.9                          | 0.827                          | 1.200                          | 1.62            |
| Body                  | Port B | ANT 1   | FR-1 FDD n26               | ALL      | 25.7                   | 25.7                     | 24.3                          | 0.528                          | 0.735                          | 1.44            |
| Body                  | Port C | ANT 12  | FR-1 FDD n26               | ALL      | 25.1                   | 25.1                     | 23.8                          | 0.186                          | 0.251                          | 1.31            |
| Body                  | Port A | ANT 14  | FR-1 FDD n26               | ALL      | 25.7                   | 25.7                     | 24.0                          | 0.606                          | 0.907                          | 1.75            |
| Body                  | Port B | ANT 1   | FR-1 FDD n30               | ALL      | 22.7                   | 22.7                     | 21.0                          | 0.806                          | 1.196                          | 1.72            |
| Body                  | Port A | ANT 2   | FR-1 FDD n30               | ALL      | 24.7                   | 17.8                     | 16.7                          | 0.924                          | 1.200                          | 1.13            |
| Body                  | Port D | ANT 3   | FR-1 FDD n30               | ALL      | 23.7                   | 20.4                     | 18.4                          | 0.766                          | 1.200                          | 1.95            |
| Body                  | Port C | ANT 14  | FR-1 FDD n30               | ALL      | 24.9                   | 22.9                     | 20.7                          | 0.719                          | 1.200                          | 2.23            |
| Body                  | Port B | ANT 1   | FR-1 TDD n41 PC3           | ALL      | 25.7                   | 22.1                     | 20.3                          | 0.792                          | 1.200                          | 1.81            |
| Body                  | Port A | ANT 2   | FR-1 TDD n41 PC3           | ALL      | 25.7                   | 17.5                     | 15.8                          | 0.818                          | 1.200                          | 1.66            |
| Body                  | Port D | ANT 3   | FR-1 TDD n41 PC3           | ALL      | 25.7                   | 20.4                     | 18.3                          | 0.746                          | 1.200                          | 2.07            |
| Body                  | Port C | ANT 14  | FR-1 TDD n41 PC3           | ALL      | 25.7                   | 16.3                     | 14.6                          | 0.808                          | 1.200                          | 1.72            |
| Body                  | Port A | ANT 2   | FR-1 TDD n48               | ALL      | 24.2                   | 19.9                     | 18.3                          | 0.821                          | 1.200                          | 1.65            |
| Body                  | Port D | ANT 3   | FR-1 TDD n48               | ALL      | 26.0                   | 23.9                     | 21.7                          | 0.721                          | 1.200                          | 2.21            |
| Body                  | Port C | ANT 14  | FR-1 TDD n48               | ALL      | 23.2                   | 18.4                     | 16.8                          | 0.838                          | 1.200                          | 1.56            |
| Body                  | Port B | ANT 7   | FR-1 TDD n48               | ALL      | 22.1                   | 20.7                     | 19.4                          | 0.881                          | 1.200                          | 1.34            |
| Body                  | Port B | ANT 1   | FR-1 TDD n53               | ALL      | 20.7                   | 20.7                     | 19.3                          | 0.508                          | 0.701                          | 1.40            |
| Body                  | Port A | ANT 2   | FR-1 TDD n53               | ALL      | 20.7                   | 17.7                     | 16.4                          | 0.882                          | 1.200                          | 1.34            |
| Body                  | Port C | ANT 14  | FR-1 TDD n53               | ALL      | 20.7                   | 17.9                     | 16.0                          | 0.773                          | 1.200                          | 1.91            |
| Body                  | Port B | ANT 1   | FR-1 FDD n66               | ALL      | 24.7                   | 23.1                     | 21.8                          | 0.880                          | 1.200                          | 1.35            |
| Body                  | Port A | ANT 2   | FR-1 FDD n66               | ALL      | 25.7                   | 17.8                     | 16.6                          | 0.917                          | 1.200                          | 1.17            |
| Body                  | Port D | ANT 3   | FR-1 FDD n66               | ALL      | 25.2                   | 21.5                     | 19.2                          | 0.710                          | 1.200                          | 2.28            |
| Body                  | Port C | ANT 14  | FR-1 FDD n66               | ALL      | 25.5                   | 25.0                     | 23.3                          | 0.815                          | 1.200                          | 1.68            |
| Body                  | Port B | ANT 1   | FR-1 FDD n70               | ALL      | 24.7                   | 24.7                     | 23.6                          | 0.898                          | 1.147                          | 1.06            |
| Body                  | Port A | ANT 2   | FR-1 FDD n70               | ALL      | 25.7                   | 17.5                     | 16.5                          | 0.944                          | 1.200                          | 1.04            |
| Body                  | Port D | ANT 3   | FR-1 FDD n70               | ALL      | 25.2                   | 21.8                     | 18.4                          | 0.552                          | 1.200                          | 3.37            |
| Body                  | Port C | ANT 14  | FR-1 FDD n70               | ALL      | 25.5                   | 23.6                     | 21.9                          | 0.807                          | 1.200                          | 1.73            |
| Body                  | Port B | ANT 1   | FR-1 FDD n71               | ALL      | 25.7                   | 25.7                     | 24.1                          | 0.645                          | 0.940                          | 1.64            |
| Body                  | Port C | ANT 12  | FR-1 FDD n71               | ALL      | 25.4                   | 25.4                     | 23.9                          | 0.460                          | 0.651                          | 1.51            |
| Body                  | Port A | ANT 14  | FR-1 FDD n71               | ALL      | 25.7                   | 25.7                     | 23.7                          | 0.667                          | 1.049                          | 1.97            |
| Body                  | Port A | ANT 2   | FR-1 TDD n77 (Block A) PC3 | ALL      | 26.0                   | 20.1                     | 18.3                          | 0.794                          | 1.200                          | 1.80            |
| Body                  | Port D | ANT 3   | FR-1 TDD n77 (Block A) PC3 | ALL      | 26.0                   | 23.8                     | 21.9                          | 0.772                          | 1.200                          | 1.92            |
| Body                  | Port C | ANT 14  | FR-1 TDD n77 (Block A) PC3 | ALL      | 26.0                   | 17.4                     | 15.5                          | 0.772                          | 1.200                          | 1.92            |
| Body                  | Port B | ANT 7   | FR-1 TDD n77 (Block A) PC3 | ALL      | 26.0                   | 19.8                     | 18.1                          | 0.804                          | 1.200                          | 1.74            |
| Body                  | Port A | ANT 2   | FR-1 TDD n77 (Block C) PC3 | ALL      | 26.0                   | 18.6                     | 16.9                          | 0.812                          | 1.200                          | 1.70            |
| Body                  | Port D | ANT 3   | FR-1 TDD n77 (Block C) PC3 | ALL      | 26.0                   | 23.4                     | 21.1                          | 0.711                          | 1.200                          | 2.27            |
| Body                  | Port C | ANT 14  | FR-1 TDD n77 (Block C) PC3 | ALL      | 26.0                   | 14.9                     | 14.0                          | 0.973                          | 1.200                          | 0.91            |
| Body                  | Port B | ANT 7   | FR-1 TDD n77 (Block C) PC3 | ALL      | 26.0                   | 19.3                     | 17.5                          | 0.798                          | 1.200                          | 1.77            |
| Body                  | Port A | ANT 2   | MSS L-Band                 | ALL      | 28.7                   | 23.0                     | 22.0                          | 2.408                          | 3.000                          | 0.96            |

| RF Exposure Condition | Antenna | Technology        | Bandwidth (MHz) | Channel | Frequency (MHz) | P <sub>Max</sub> (dBm) | P <sub>Limit</sub> (dBm) | SAR <sub>Measured</sub> (W/kg) | SAR <sub>Reported</sub> (W/kg) |
|-----------------------|---------|-------------------|-----------------|---------|-----------------|------------------------|--------------------------|--------------------------------|--------------------------------|
| Body                  | ANT 3   | Wi-Fi 2.4 GHz     | 20 MHz          | 1       | 2412            | 20.5                   | 19.0                     | 0.796                          | 1.113                          |
| Body                  | ANT 3   | Wi-Fi 2.4 GHz     | 20 MHz          | 6       | 2437            | 21.2                   | 19.0                     | 0.813                          | 1.137                          |
| Body                  | ANT 5   | Wi-Fi U-NII 2A    | 40 MHz          | 54      | 5270            | 20.4                   | 20.0                     | 0.782                          | 1.121                          |
| Body                  | ANT 5   | Wi-Fi U-NII 2A    | 40 MHz          | 62      | 5310            | 17.5                   | 17.5                     | 0.444                          | 1.200                          |
| Body                  | ANT 5   | Wi-Fi U-NII 2C    | 160 MHz         | 114     | 5570            | 16.0                   | 16.0                     | 0.740                          | 1.200                          |
| Body                  | ANT 5   | Wi-Fi U-NII 3     | 80 MHz          | 155     | 5775            | 20.4                   | 14.8                     | 0.749                          | 1.160                          |
| Body                  | ANT 5   | Wi-Fi U-NII 5     | 160 MHz         | 47      | 6185            | 19.6                   | 13.0                     | 0.439                          | 0.661                          |
| Body                  | ANT 5   | Wi-Fi U-NII 6     | 160 MHz         | 111     | 6505            | 15.6                   | 12.0                     | 0.448                          | 0.706                          |
| Body                  | ANT 5   | Wi-Fi U-NII 7     | 160 MHz         | 175     | 6825            | 15.3                   | 12.0                     | 0.162                          | 0.244                          |
| Body                  | ANT 5   | Wi-Fi U-NII 8     | 160 MHz         | 207     | 6985            | 18.4                   | 15.3                     | 0.836                          | 1.188                          |
| Body                  | ANT 4   | Wi-Fi 2.4 GHz     | 20 MHz          | 6       | 2437            | 21.2                   | 19.0                     | 0.797                          | 1.114                          |
| Body                  | ANT 4   | Wi-Fi 2.4 GHz     | 20 MHz          | 11      | 2462            | 21.2                   | 19.0                     | 0.806                          | 1.127                          |
| Body                  | ANT 6   | Wi-Fi U-NII 2A    | 160 MHz         | 50      | 5250            | 16.5                   | 16.0                     | 0.609                          | 0.960                          |
| Body                  | ANT 6   | Wi-Fi U-NII 2C    | 80 MHz          | 122     | 5610            | 20.6                   | 16.0                     | 0.610                          | 0.892                          |
| Body                  | ANT 6   | Wi-Fi U-NII 2C    | 80 MHz          | 138     | 5690            | 20.6                   | 16.0                     | 0.657                          | 0.960                          |
| Body                  | ANT 6   | Wi-Fi U-NII 3     | 80 MHz          | 155     | 5775            | 20.6                   | 16.0                     | 0.730                          | 1.067                          |
| Body                  | ANT 6   | Wi-Fi U-NII 5     | 160 MHz         | 47      | 6185            | 19.8                   | 14.5                     | 0.384                          | 0.591                          |
| Body                  | ANT 6   | Wi-Fi U-NII 6     | 80 MHz          | 103     | 6465            | 17.2                   | 12.5                     | 0.261                          | 0.357                          |
| Body                  | ANT 6   | Wi-Fi U-NII 7     | 160 MHz         | 143     | 6665            | 19.8                   | 12.5                     | 0.265                          | 0.399                          |
| Body                  | ANT 6   | Wi-Fi U-NII 8     | 160 MHz         | 207     | 6985            | 18.7                   | 13.0                     | 0.310                          | 0.512                          |
| Body                  | ANT 3   | Bluetooth 2.4 GHz | N/A             | N/A     | N/A             | 21.0                   | 19.8                     | 0.875                          | 0.908                          |
| Body                  | ANT 5   | NB U-NII 1        | N/A             | N/A     | N/A             | 14.5                   | 14.5                     | 0.376                          | 1.200                          |
| Body                  | ANT 5   | NB U-NII 3        | N/A             | N/A     | N/A             | 19.8                   | 15.8                     | 0.620                          | 1.178                          |
| Body                  | ANT 4   | Bluetooth 2.4 GHz | N/A             | N/A     | N/A             | 20.5                   | 20.5                     | 0.962                          | 1.200                          |
| Body                  | ANT 6   | NB U-NII 1        | N/A             | N/A     | N/A             | 14.3                   | 14.3                     | 0.464                          | 1.200                          |
| Body                  | ANT 6   | NB U-NII 3        | N/A             | N/A     | N/A             | 19.5                   | 14.3                     | 0.625                          | 1.188                          |
| Body                  | ANT 6   | NB U-NII 5        | N/A             | Mid     | 6263            | -0.3                   | -0.3                     | 0.026                          | 1.200                          |
| Body                  | ANT 3   | 802.15.4          | N/A             | N/A     | N/A             | 20.5                   | 18.8                     | 0.742                          | 0.995                          |

### 3. Power Density Characterization

The DUT supports 5G millimeter wave NR which is installed at location(s) shown in the operational description. In this chapter, a hybrid approach is used: Using electromagnetic (EM) simulation and actual measurements to efficiently, and conservatively, characterize the power density profile for the DUT.

#### 3.1. Exposure Scenarios in PD Evaluation

In general, for devices operating at frequencies > 6 GHz, PD is required to be assessed for all antenna configurations (beams) from all millimeter wave antenna modules installed inside the device. Furthermore, this PD evaluation should be performed at low, mid, and high channels for each supported millimeter wave band.

For this DUT, the 4 cm<sup>2</sup> spatially-averaged PD is evaluated along the applicable surfaces and the worst-case PD is determined by taking the maximum PD among all the evaluated surfaces for each beam/band.

#### 3.2. PD Characterization Overview

Parameters used in PD Characterization:

- The supported beams per band for each state (State A & State B) are outlined within the DUT codebook, Table 3-1 and Table 3-2.
- **$PD_{\text{Reported}}$** : It should be less than the regulatory PD limit to account for all device design related uncertainties.
- **$P_{\text{Limit}}$** : For a PD characterized wireless device, the input power level at antenna port(s) for each beam corresponding to  $PD_{\text{Reported}}$ .
- **PD Characterization**: The table that contains the  $P_{\text{Limit}}$  fed to the antenna port(s) for all supported beams.

Figure 3-1 outlines the PD Characterization process.

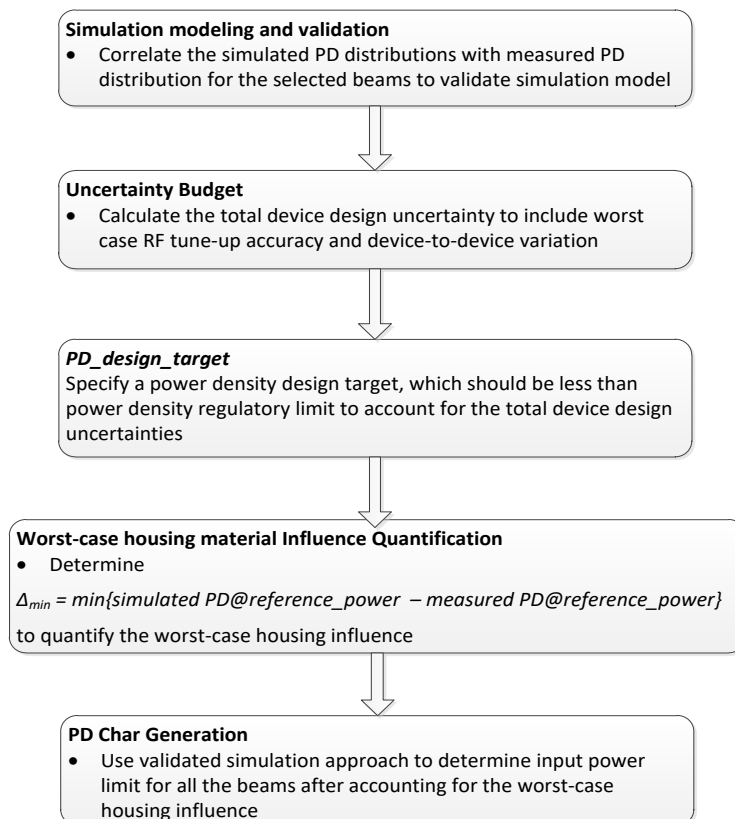


**Figure 3-1: High Level Flow Chart for Power Density Characterization**

### 3.3. DUT Codebook

In general, all the beams that the DUT supports are specified in the pre-defined codebook. The codebook is device design specific and generated after evaluating radiation coverage from this specific device.

Table 3-1 and Table 3-2 shows all the beams and their relevant information for each state (State A & State B).

The PD evaluation needs to be performed for all the beams listed in Table 3-1 and Table 3-2.

**Table 3-1: DUT Codebook (State A)**

| n258    |        |              |               | n260    |        |              |               | n261    |        |              |               |
|---------|--------|--------------|---------------|---------|--------|--------------|---------------|---------|--------|--------------|---------------|
| Beam ID | Module | Antenna Type | # of Elements | Beam ID | Module | Antenna Type | # of Elements | Beam ID | Module | Antenna Type | # of Elements |
| 0       | M1     | Patch        | 5             | 0       | M1     | Patch        | 5             | 0       | M1     | Patch        | 5             |
| 1       | M1     | Patch        | 5             | 1       | M1     | Patch        | 5             | 1       | M1     | Patch        | 5             |
| 2       | M1     | Patch        | 5             | 2       | M1     | Patch        | 5             | 2       | M1     | Patch        | 5             |
| 3       | M1     | Patch        | 5             | 3       | M1     | Patch        | 5             | 3       | M1     | Patch        | 5             |
| 4       | M1     | Patch        | 5             | 4       | M1     | Patch        | 5             | 4       | M1     | Patch        | 5             |
| 5       | M1     | Patch        | 5             | 5       | M1     | Patch        | 5             | 5       | M1     | Patch        | 5             |
| 6       | M1     | Patch        | 5             | 6       | M1     | Patch        | 5             | 6       | M1     | Patch        | 5             |
| 7       | M1     | Patch        | 5             | 7       | M1     | Patch        | 5             | 7       | M1     | Patch        | 5             |
| 8       | M1     | Patch        | 5             | 8       | M1     | Patch        | 5             | 8       | M1     | Patch        | 5             |
| 9       | M1     | Patch        | 5             | 9       | M1     | Patch        | 5             | 9       | M1     | Patch        | 5             |
| 10      | M1     | Patch        | 5             | 10      | M1     | Patch        | 5             | 10      | M1     | Patch        | 5             |
| 11      | M1     | Patch        | 3             | 11      | M1     | Patch        | 3             | 11      | M1     | Patch        | 3             |
| 12      | M1     | Patch        | 3             | 12      | M1     | Patch        | 3             | 12      | M1     | Patch        | 3             |
| 13      | M1     | Patch        | 3             | 13      | M1     | Patch        | 3             | 13      | M1     | Patch        | 3             |
| 14      | M1     | Patch        | 3             | 14      | M1     | Patch        | 3             | 14      | M1     | Patch        | 3             |
| 15      | M1     | Patch        | 3             | 15      | M1     | Patch        | 3             | 15      | M1     | Patch        | 3             |
| 16      | M1     | Patch        | 3             | 16      | M1     | Patch        | 3             | 16      | M1     | Patch        | 3             |
| 17      | M1     | Patch        | 1             | 17      | M1     | Patch        | 1             | 17      | M1     | Patch        | 1             |
| 18      | M1     | Patch        | 1             | 18      | M1     | Patch        | 1             | 18      | M1     | Patch        | 1             |
| 19      | M1     | Patch        | 1             | 19      | M1     | Patch        | 1             | 19      | M1     | Patch        | 1             |
| 20      | M1     | Patch        | 1             | 20      | M1     | Patch        | 1             | 20      | M1     | Patch        | 1             |
| 21      | M1     | Patch        | 1             | 21      | M1     | Patch        | 1             | 21      | M1     | Patch        | 1             |

**Table 3-2: DUT Codebook (State B)**

| n258    |        |              |               | n260    |        |              |               | n261    |        |              |               |
|---------|--------|--------------|---------------|---------|--------|--------------|---------------|---------|--------|--------------|---------------|
| Beam ID | Module | Antenna Type | # of Elements | Beam ID | Module | Antenna Type | # of Elements | Beam ID | Module | Antenna Type | # of Elements |
| 0       | M1     | Patch        | 5             | 0       | M1     | Patch        | 5             | 0       | M1     | Patch        | 5             |
| 1       | M1     | Patch        | 5             | 1       | M1     | Patch        | 5             | 1       | M1     | Patch        | 5             |
| 2       | M1     | Patch        | 5             | 2       | M1     | Patch        | 5             | 2       | M1     | Patch        | 5             |
| 3       | M1     | Patch        | 5             | 3       | M1     | Patch        | 5             | 3       | M1     | Patch        | 5             |
| 4       | M1     | Patch        | 5             | 4       | M1     | Patch        | 5             | 4       | M1     | Patch        | 5             |
| 5       | M1     | Patch        | 5             | 5       | M1     | Patch        | 5             | 5       | M1     | Patch        | 5             |
| 6       | M1     | Patch        | 5             | 6       | M1     | Patch        | 5             | 6       | M1     | Patch        | 5             |
| 7       | M1     | Patch        | 5             | 7       | M1     | Patch        | 5             | 7       | M1     | Patch        | 5             |
| 8       | M1     | Patch        | 5             | 8       | M1     | Patch        | 5             | 8       | M1     | Patch        | 5             |
| 9       | M1     | Patch        | 5             | 9       | M1     | Patch        | 5             | 9       | M1     | Patch        | 5             |
| 10      | M1     | Patch        | 5             | 10      | M1     | Patch        | 5             | 10      | M1     | Patch        | 5             |
| 11      | M1     | Patch        | 3             | 11      | M1     | Patch        | 3             | 11      | M1     | Patch        | 3             |
| 12      | M1     | Patch        | 3             | 12      | M1     | Patch        | 3             | 12      | M1     | Patch        | 3             |
| 13      | M1     | Patch        | 3             | 13      | M1     | Patch        | 3             | 13      | M1     | Patch        | 3             |
| 14      | M1     | Patch        | 3             | 14      | M1     | Patch        | 3             | 14      | M1     | Patch        | 3             |
| 15      | M1     | Patch        | 3             | 15      | M1     | Patch        | 3             | 15      | M1     | Patch        | 3             |
| 16      | M1     | Patch        | 3             | 16      | M1     | Patch        | 3             | 16      | M1     | Patch        | 3             |
| 17      | M1     | Patch        | 1             | 17      | M1     | Patch        | 1             | 17      | M1     | Patch        | 1             |
| 18      | M1     | Patch        | 1             | 18      | M1     | Patch        | 1             | 18      | M1     | Patch        | 1             |
| 19      | M1     | Patch        | 1             | 19      | M1     | Patch        | 1             | 19      | M1     | Patch        | 1             |
| 20      | M1     | Patch        | 1             | 20      | M1     | Patch        | 1             | 20      | M1     | Patch        | 1             |
| 21      | M1     | Patch        | 1             | 21      | M1     | Patch        | 1             | 21      | M1     | Patch        | 1             |

### 3.4. Simulation and modeling validation

#### 3.4.1. Modeling for Simulation

Device modeling is described in a supplemental exhibit.

#### 3.4.2. Modeling Validation

To validate modeling and simulation:

1. Select one beam (i.e., antenna array configuration) per antenna type (dipole/patch) and per antenna module. All three antennas contain only patch arrays. Therefore, the beam selection criteria for each millimeter wave antenna are:

- a) Two beams from each antenna module.

Note: Since the relative phase between two single beams in a beam pair is uncontrolled and could vary from run to run, for the validation purpose, the selection is limited to the single beam antenna array configuration. Additionally, single beam containing a higher number of active antenna elements is selected. For example, a single beam with four active patches should be selected over beam with a single active patch antenna beam.

2. For a given input power, perform both PD simulation and PD measurement to obtain the simulated PD distributions and measured PD distributions on the surface in front of the antenna array as well as the surfaces that are adjacent to the antenna array as they could potentially have strong radiating energy when considering the orientation of antenna array and type of antenna array (i.e., patch array or dipole array).
3. Validate modeling and simulation by correlating the simulated PD distribution and measured PD distribution for all antenna array configurations selected in Step 1 and for all surfaces selected in Step 2.

The modeling validation is performed through correlating the simulated point PD distribution to measured point PD distribution.

The difference in 4 cm<sup>2</sup>-averaged PD is not used for the purpose of validity of the modeling because the housing material property (for non-metal material) used in the simulation is an approximation (note the accurate material properties are not available at millimeter wave frequencies). These discrepancies in PD magnitude will be used to determine the worst-case housing influence (due to non-metal material property uncertainty) in §3.6. The worst-case housing influence will be accounted for in PD Characterization generation for conservative RF exposure assessment, see §3.7 for details.

Based on the selection criteria described in Step 1 and Step 2, the beams and surfaces selected for modeling validation of the DUT for both State A and State B are listed in Table 3-3 and Table 3-4.

**Table 3-3: Beams and Surfaces Selection for PD Correlation (State A)**

| Band | Antenna | Beam ID | Pol | Surface |
|------|---------|---------|-----|---------|
| n258 | M1      | 6       | H   | Back    |
|      |         | 3       | V   | Back    |
|      |         | 6       | H+V | Back    |
| n260 | M1      | 5       | H   | Back    |
|      |         | 0       | V   | Back    |
|      |         | 5       | H+V | Back    |
| n261 | M1      | 0       | H   | Back    |
|      |         | 4       | V   | Back    |
|      |         | 4       | H+V | Back    |

**Table 3-4: Beams and Surfaces Selection for PD Correlation (State B)**

| Band | Antenna | Beam ID | Pol | Surface |
|------|---------|---------|-----|---------|
| n258 | M1      | 6       | H   | Back    |
|      |         | 3       | V   | Back    |
|      |         | 6       | H+V | Back    |
| n260 | M1      | 5       | H   | Back    |
|      |         | 0       | V   | Back    |
|      |         | 5       | H+V | Back    |
| n261 | M1      | 0       | H   | Back    |
|      |         | 4       | V   | Back    |
|      |         | 4       | H+V | Back    |

With an input power of 6 dBm for n258, n260, and n261 on both State A and State B, PD measurement and PD simulation are conducted for all beams and surfaces listed in Table 3-3 and Table 3-4. Both PD measurement and PD simulation are performed at mid channel of each millimeter wave beam, PD measurement is conducted with CW modulation.

- PD distribution:

Please refer to the operational description.

- 4 cm<sup>2</sup>-averaged PD value

Table 3-5 and Table 3-6 list the measured 4 cm<sup>2</sup>-averaged PD and simulated 4 cm<sup>2</sup>-averaged PD for all selected beams and surfaces for n258, n260, and n261 bands for both State A and State B. The discrepancy between simulated and measured PD value will be used to determine worst-case housing influence for conservative assessment (see §3.6).

**Table 3-5: Measured and Simulated 4 cm<sup>2</sup>-averaged PD for Selected Beams with 6 dBm Input Power for Supported Bands (State A)**

| Band | Antenna | Beam ID | Pol | Surface | 4cm <sup>2</sup> avg. PD |       | Delta <sup>1</sup> |
|------|---------|---------|-----|---------|--------------------------|-------|--------------------|
|      |         |         |     |         | Meas.                    | Sim   |                    |
| n258 | M1      | 6       | H   | Back    | 23.89                    | 19.09 | <b>-0.97</b>       |
|      |         | 3       | V   | Back    | 23.78                    | 19.79 | <b>-0.80</b>       |
|      |         | 6       | H+V | Back    | 46.00                    | 37.95 | <b>-0.84</b>       |
| n260 | M1      | 5       | H   | Back    | 18.63                    | 15.32 | <b>-0.85</b>       |
|      |         | 0       | V   | Back    | 18.00                    | 14.49 | <b>-0.94</b>       |
|      |         | 5       | H+V | Back    | 34.20                    | 29.17 | <b>-0.69</b>       |
| n261 | M1      | 0       | H   | Back    | 11.57                    | 13.00 | <b>0.51</b>        |
|      |         | 4       | V   | Back    | 17.57                    | 15.98 | <b>-0.41</b>       |
|      |         | 4       | H+V | Back    | 28.80                    | 28.24 | <b>-0.09</b>       |

<sup>1</sup>Delta = Sim - Meas (dB)

**Table 3-6: Measured and Simulated 4 cm<sup>2</sup>-averaged PD for Selected Beams with 6 dBm Input Power for Supported Bands (State B)**

| Band | Antenna | Beam ID | Pol | Surface | 4cm <sup>2</sup> avg. PD |       | Delta <sup>1</sup> |
|------|---------|---------|-----|---------|--------------------------|-------|--------------------|
|      |         |         |     |         | Meas.                    | Sim   |                    |
| n258 | M1      | 6       | H   | Back    | 22.21                    | 19.14 | <b>-0.65</b>       |
|      |         | 3       | V   | Back    | 24.52                    | 20.21 | <b>-0.84</b>       |
|      |         | 6       | H+V | Back    | 48.00                    | 38.53 | <b>-0.95</b>       |
| n260 | M1      | 5       | H   | Back    | 19.57                    | 15.12 | <b>-1.12</b>       |
|      |         | 0       | V   | Back    | 18.42                    | 14.58 | <b>-1.02</b>       |
|      |         | 5       | H+V | Back    | 35.60                    | 29.06 | <b>-0.88</b>       |
| n261 | M1      | 0       | H   | Back    | 12.31                    | 13.11 | <b>0.27</b>        |
|      |         | 4       | V   | Back    | 18.73                    | 15.49 | <b>-0.82</b>       |
|      |         | 4       | H+V | Back    | 31.60                    | 27.50 | <b>-0.60</b>       |

<sup>1</sup>Delta = Sim - Meas (dB)

### 3.4.3. Simulation for Power Density

The PD exposure of DUT can be reliably assessed using the validated simulation approach.

In general, all six surfaces of the DUT should be assessed for RF exposure from the millimeter wave radio and the worst-case PD should be determined by:

$$PD_{\text{worst-case}} = \max \{PD_{s1}, PD_{s2}, PD_{s3}, PD_{s4}, PD_{s5}, PD_{s6}\} \quad (1)$$

where  $PD_{s1}$ ,  $PD_{s2}$ ,  $PD_{s3}$ ,  $PD_{s4}$ ,  $PD_{s5}$ ,  $PD_{s6}$  are the highest 4 cm<sup>2</sup>-averaged PD on surface S1, S2, S3, S4, S5 and S6 of the device. respectively.

However, depending on the location of the millimeter wave module and the antenna array orientation relative to the surface of the device, one or more surface(s) can be excluded for PD calculation as the PD value(s) on the excluded surface(s) will be undoubtedly lower when comparing to other surfaces; thus, the exclusion will have no impact for the worst-case PD determined using Equation 1.

For this DUT, the type of antenna array (containing in each millimeter wave radio), the surface planes identified for PD evaluation for both State A and State B to determine the worst-case PD are selected and listed in Table 3-7 and Table 3-8

**Table 3-7: PD Evaluation Plane (State A)**

| ANT | Front | Left | Right | Top | Bottom | Back |
|-----|-------|------|-------|-----|--------|------|
|     | S1    | S3   | S4    | S5  | S6     | S7   |
| M1  | No    | Yes  | No    | Yes | No     | Yes  |

**Table 3-8: PD Evaluation Plane (State B)**

| ANT | Front | Left | Right | Top | Bottom | Back |
|-----|-------|------|-------|-----|--------|------|
|     | S1    | S3   | S4    | S5  | S6     | S7   |
| M1  | No    | Yes  | No    | Yes | No     | Yes  |

The EM simulation is performed to characterize PD at low, mid, and high channels for each supported band. The simulation setup (mesh, convergence criteria, and radiation boundary settings) as described in the operational description ensures an accurate and reliable result for PD simulation on the planes identified. Both point PD and 4 cm<sup>2</sup>-averaged PD distributions on the worst surface plane (i.e., the surface having highest PD value for the beam tested) are plotted and provided in the operational description to show that the PD hotspots are captured in this analysis.

### 3.5. $PD_{\text{Reported}}$

The manufacturer has their own internal controls for managing uncertainty for use in determining the  $PD_{\text{Reported}}$ . To account for the total design related uncertainty,  $PD_{\text{Reported}}$  needs to be:

$$PD_{\text{Reported}} < PD_{\text{regulatory\_limit}} \times 10^{\frac{-\text{total uncertainty}}{10}}$$

The regulatory 4 cm<sup>2</sup>-averaged PD requirement of 10 W/m<sup>2</sup>, the  $PD_{\text{Reported}}$  is determined as:

### 3.6. Worst-case Housing Influence Determination

For non-metal material, the material property cannot be accurately characterized at millimeter wave frequencies to date. The estimated material property for the device housing is used in the simulation model, which could influence the accuracy in simulation for PD amplitude quantification. Since the housing influence on PD could vary from surface to surface where the EM field propagates through, the most underestimated surface is used to quantify the worst-case housing influence for conservative assessment.

Depending on the type of antenna array, i.e., dipole antenna array or patch antenna array, the nature of EM field propagation in the near field is different. Therefore, the worst-case housing influence is determined per antenna module and per antenna type.

For this DUT, on both State A and State B, when comparing a simulated 4 cm<sup>2</sup>-averaged PD and measured 4 cm<sup>2</sup>-averaged PD, the worst error introduced for each type of antenna array and antenna module when using the estimated material property in the simulation is accented in bold numbers in Table 3-9 and Table 3-10. Thus, the worst-case housing influence, denoted as  $\Delta_{\min} = \text{Sim. PD} - \text{Meas. PD}$ , is determined as:

**Table 3-9:  $\Delta_{\min}$  (State A)**

| Band | Ant | Pol | $\Delta_{\min}$ (dB) |
|------|-----|-----|----------------------|
| n258 | M1  | H   | <b>-0.97</b>         |
|      |     | V   | <b>-0.80</b>         |
|      |     | H+V | <b>-0.84</b>         |
| n260 | M1  | H   | <b>-0.85</b>         |
|      |     | V   | <b>-0.94</b>         |
|      |     | H+V | <b>-0.69</b>         |
| n261 | M1  | H   | <b>0.51</b>          |
|      |     | V   | <b>-0.41</b>         |
|      |     | H+V | <b>-0.09</b>         |

**Table 3-10:  $\Delta_{\min}$  (State B)**

| Band | Ant | Pol | $\Delta_{\min}$ (dB) |
|------|-----|-----|----------------------|
| n258 | M1  | H   | <b>-0.65</b>         |
|      |     | V   | <b>-0.84</b>         |
|      |     | H+V | <b>-0.95</b>         |
| n260 | M1  | H   | <b>-1.12</b>         |
|      |     | V   | <b>-1.02</b>         |
|      |     | H+V | <b>-0.88</b>         |
| n261 | M1  | H   | <b>0.27</b>          |
|      |     | V   | <b>-0.82</b>         |
|      |     | H+V | <b>-0.60</b>         |

$\Delta_{min}$  represents the worst case where RF exposure is underestimated the most in simulation when using the estimated material property for glass/plastics of the housing. For conservative assessment, the  $\Delta_{min}$  is used as the worst-case factor and applied to all the beams in the corresponding beam group to determine input power limits in PD characterization for compliance (see §3.7.3 for details).

### 3.7. PD Characterization

This section describes the PD Characterization generation that complies with the  $PD_{Reported}$  determined in §3.5 and complies with the regulatory power density limit.

#### 3.7.1. Scaling Factor for Single Beams

To determine the  $P_{Limit}$  at each antenna port, perform the simulation at low, mid, and high channel for each millimeter wave band supported, with a given input power per active port:

1. Obtain  $PD_{surface}$  value (the worst PD among all identified surfaces of the DUT) at all three channels for all single beams specified in the codebook of Table 5-1.
2. Derive a scaling factor at low, mid and high channel,  $s(i)_{low\_or\_mid\_or\_high}$ , by:

$$s(i)_{low\_or\_mid\_or\_high} = \frac{PD_{design\ target}}{sim.PD_{surface}(i)}, i \in single\ beams \quad (2)$$

3. Determine the worst-case scaling factor,  $s(i)$ , among low, mid and high channels:

$$s(i) = \min \{s_{low}(i), s_{mid}(i), s_{high}(i)\}, i \in single\ beams \quad (3)$$

4. Determine the simulated  $P_{Limit}$ ,  $sim.power_{limit}$ , for single beam  $i$  by:

$$sim.power_{limit} = 10 * \log_{10}(s(i)) + sim.input.power.at.active.port, i \in single\ beams \quad (4)$$

In the above equation, power is expressed in units of (dBm)

NOTE:  $P_{ref}(i) = sim.input.power.at.active.port(i)$

### 3.7.2. Scaling Factor for Beam Pairs

The relative phase between beam pair is not controlled in the modem's design and could vary from run to run. Therefore, for a beam pair, based on the simulation results, the worst-case scaling factor needs to be determined mathematically to ensure compliance.

For a beam pair, extract the E-fields and H-fields from the corresponding single beams at low, mid, and high channel for each supported band and for all identified surfaces of the DUT.

For a given beam pair containing  $beam_a$  and  $beam_b$ , and for a given channel, let relative phase between  $beam_a$  and  $beam_b = \emptyset$ , and the total PD of the beam pair can be expressed as:

$$\begin{aligned} total\ PD(\emptyset) &= \frac{1}{2} \sqrt{Re\{PD_x(\emptyset)\}^2 + Re\{PD_y(\emptyset)\}^2 + Re\{PD_z(\emptyset)\}^2} \\ &= \frac{1}{2} Re\left\{\left(\vec{E}_a + \vec{E}_b e^{j\omega\emptyset}\right) \times \left(\vec{H}_a + \vec{H}_b e^{j\omega\emptyset}\right)^*\right\} \quad (5) \end{aligned}$$

where,  $PD_x(\emptyset)$ ,  $PD_y(\emptyset)$ , and  $PD_z(\emptyset)$  are the three components of the  $total\ PD(\emptyset)$ ;  $E_a$  and  $H_a$  are the extracted E-fields and H-fields of  $beam_a$ , while  $E_b$  and  $H_b$  are the extracted E-fields and H-fields of  $beam_b$ .

Sweep  $\emptyset$  with a  $5^\circ$  step from  $0^\circ$  to  $360^\circ$  to determine the worst-case,  $\emptyset_{worstcase}$ , which results in the highest  $total\ PD(\emptyset)$  among all identified surfaces for this beam pair at this channel. For details on the worst case  $total\ PD(\emptyset)$  derivation, see Appendix A.

Follow the above procedure to determine  $\emptyset_{worstcase}$  for all three channels to obtain the scaling factor given by the equation below for low, mid, and high channels:

$$s(i)_{low\_or\_mid\_or\_high} = \frac{PD\ design\ target}{total\ PD(\emptyset(i)_{worstcase})}, i \in beam\ pairs \quad (6)$$

The term  $\emptyset_{worstcase}$  varies with channel and beam pair, the lowest scaling factor among all three channels,  $s(i)$ , is determined for the beam pair  $i$ :

$$s(i) = \min\{s_{low}(i), s_{mid}(i), s_{high}(i)\}, i \in beam\ pairs \quad (7)$$

The simulated  $P_{Limit}$ ,  $sim.power_{limit}$ , for beam pair  $i$  can be determined by:

$$sim.power_{limit} = 10 * \log_{10}(s(i)) + sim.input.power.at.active.port, i \in beam\ pairs \quad (8)$$

In the above equation, power is expressed in units of (dBm)

NOTE:  $P_{ref}(i) = sim.input.power.at.active.port(i)$

### 3.7.3. PD $P_{Limit}$

The PD Characterization specifies the limit of input power at an antenna port that corresponds to  $PD_{Reported}$  for all beams.

Ideally, if there is no uncertainty associated with hardware design,  $P_{Limit}$ , denoted as  $P_{Limit}(i)$ , for beam  $i$  can be obtained after accounting for the housing influence ( $\Delta_{min}$ ) determined in Table 3-9 and Table 3-10 of §3.6, given by:

$$P_{limit}(i) = sim.power_{limit}(i) + \Delta_{min}, i \in all\ beams \quad (8)$$

In the above equation, power is expressed in units of (dBm)

The term  $sim.power_{limit}(i)$  includes the design uncertainty, the TxAGC uncertainty, and the scaling factor obtained from Eq. (4) or Eq. (8) for beam  $i$ ; the term  $\Delta_{min}$  is the worst-case housing influence factor (determined in Table 3-9) for beam  $i$ .

If simulation overestimates the housing influence, then  $\Delta_{min}$  (= simulated PD – measured PD) is negative, which means that the measured PD would be higher than the simulated PD. The input power to antenna elements determined via simulation must be decreased for compliance.

Similarly, if simulation underestimates the loss, then  $\Delta_{min}$  is positive (measured PD would be lower than the simulated value). Input power to antenna elements determined via simulation can be increased and still be PD compliant.

The hardware design has uncertainty which must be properly considered. In §3.6, the TxAGC uncertainty is embedded in the process of  $\Delta_{min}$  determination. Since TxAGC uncertainty is already accounted for in  $PD_{Reported}$  (see §3.5), it needs to be removed to avoid double counting this uncertainty.

Thus, Equation 8 is modified to:

**If** -TxAGC uncertainty <  $\Delta_{min}$  < TxAGC uncertainty,

$$input.power.limit(i) = sim.power_{limit}(i), i \in all\ beams \quad (9)$$

**else if**  $\Delta_{min}$  < -TxAGC uncertainty,

$$input.power.limit(i) = sim.power_{limit}(i) + (\Delta_{min} + TxAGC\ uncertainty), i \in all\ beams \quad (10)$$

**else if**  $\Delta_{min}$  > TxAGC uncertainty,

$$input.power.limit(i) = sim.power_{limit}(i) + (\Delta_{min} - TxAGC\ uncertainty), i \in all\ beams \quad (11)$$

In the above three equations, power is expressed in units of (dBm)

Following the logic above,  $P_{Limit}$  for this DUT can be calculated using Equations (9), (10) and (11), i.e.,

Table 3-11:  $P_{Limit}$  Calculation (State A)

| Band | Ant | Pol | $\Delta_{min}$ (dB) | $P_{Limit}$ Equation | $P_{Limit}$ (dBm) | Notes       |
|------|-----|-----|---------------------|----------------------|-------------------|-------------|
| n258 | M1  | H   | <b>-0.97</b>        | sim.power_limit(i)   | -1.26             | Using Eq. 9 |
|      |     | V   | <b>-0.80</b>        | sim.power_limit(i)   | -4.11             | Using Eq. 9 |
|      |     | H+V | <b>-0.84</b>        | sim.power_limit(i)   | -4.11             | Using Eq. 9 |
| n260 | M1  | H   | <b>-0.85</b>        | sim.power_limit(i)   | -0.03             | Using Eq. 9 |
|      |     | V   | <b>-0.94</b>        | sim.power_limit(i)   | 0.04              | Using Eq. 9 |
|      |     | H+V | <b>-0.69</b>        | sim.power_limit(i)   | -2.72             | Using Eq. 9 |
| n261 | M1  | H   | <b>0.51</b>         | sim.power_limit(i)   | 0.99              | Using Eq. 9 |
|      |     | V   | <b>-0.41</b>        | sim.power_limit(i)   | -0.23             | Using Eq. 9 |
|      |     | H+V | <b>-0.09</b>        | sim.power_limit(i)   | -2.72             | Using Eq. 9 |

Table 3-12:  $P_{Limit}$  Calculation (State B)

| Band | Ant | Pol | $\Delta_{min}$ (dB) | $P_{Limit}$ Equation | $P_{Limit}$ (dBm) | Notes       |
|------|-----|-----|---------------------|----------------------|-------------------|-------------|
| n258 | M1  | H   | <b>-0.65</b>        | sim.power_limit(i)   | -1.17             | Using Eq. 9 |
|      |     | V   | <b>-0.84</b>        | sim.power_limit(i)   | -4.29             | Using Eq. 9 |
|      |     | H+V | <b>-0.95</b>        | sim.power_limit(i)   | -4.29             | Using Eq. 9 |
| n260 | M1  | H   | <b>-1.12</b>        | sim.power_limit(i)   | -0.03             | Using Eq. 9 |
|      |     | V   | <b>-1.02</b>        | sim.power_limit(i)   | -0.08             | Using Eq. 9 |
|      |     | H+V | <b>-0.88</b>        | sim.power_limit(i)   | -2.67             | Using Eq. 9 |
| n261 | M1  | H   | <b>0.27</b>         | sim.power_limit(i)   | 0.84              | Using Eq. 9 |
|      |     | V   | <b>-0.82</b>        | sim.power_limit(i)   | -0.40             | Using Eq. 9 |
|      |     | H+V | <b>-0.60</b>        | sim.power_limit(i)   | -2.92             | Using Eq. 9 |

Thus, the DUT PD Characterization for n258, n260, and n261 bands for State A and State B are as shown in Table 3-13 and Table 3-14.

Table 3-13: PD Characterization (State A)

| n258 |         |                   | n260 |         |                   |       | n261 |         |                   |       |
|------|---------|-------------------|------|---------|-------------------|-------|------|---------|-------------------|-------|
| Pol. | Beam ID | $P_{Limit}$ (dBm) | Pol. | Beam ID | $P_{Limit}$ (dBm) |       | Pol. | Beam ID | $P_{Limit}$ (dBm) |       |
|      |         | Freq. Index       |      |         | Freq. Index       |       |      |         | Freq. Index       |       |
|      |         | 0                 |      |         | 4                 | 5     |      |         | 2                 | 3     |
| H    | 0       | -0.35             | H    | 0       | -0.76             | -0.03 | H    | 0       | 0.99              | 1.88  |
| H    | 1       | 3.05              | H    | 1       | 2.25              | 1.92  | H    | 1       | 2.21              | 1.43  |
| H    | 2       | 1.81              | H    | 2       | 0.28              | 0.74  | H    | 2       | 0.71              | 2.04  |
| H    | 3       | -0.78             | H    | 3       | 0.99              | 0.68  | H    | 3       | 0.54              | 0.99  |
| H    | 4       | 0.28              | H    | 4       | 2.80              | 3.80  | H    | 4       | 1.23              | 1.51  |
| H    | 5       | 3.03              | H    | 5       | -0.18             | 0.15  | H    | 5       | 2.94              | 4.02  |
| H    | 6       | -1.26             | H    | 6       | -0.49             | 0.20  | H    | 6       | 1.09              | 1.51  |
| H    | 7       | 2.88              | H    | 7       | 1.77              | 1.77  | H    | 7       | 1.81              | 2.00  |
| H    | 8       | 2.17              | H    | 8       | -0.37             | 0.77  | H    | 8       | 0.99              | 2.71  |
| H    | 9       | 1.84              | H    | 9       | 2.67              | 1.92  | H    | 9       | 1.16              | 1.92  |
| H    | 10      | 2.00              | H    | 10      | 1.58              | 1.54  | H    | 10      | 2.17              | 3.55  |
| H    | 11      | 0.78              | H    | 11      | 0.70              | 0.35  | H    | 11      | 2.20              | 2.47  |
| H    | 12      | 2.45              | H    | 12      | 1.93              | 1.75  | H    | 12      | 2.35              | 1.99  |
| H    | 13      | 1.54              | H    | 13      | 1.27              | 1.13  | H    | 13      | 2.52              | 2.41  |
| H    | 14      | 1.08              | H    | 14      | 4.24              | 2.42  | H    | 14      | 5.87              | 4.84  |
| H    | 15      | 2.24              | H    | 15      | 1.06              | 1.00  | H    | 15      | 2.79              | 3.29  |
| H    | 16      | 1.52              | H    | 16      | 0.95              | 0.50  | H    | 16      | 1.91              | 1.65  |
| H    | 17      | 6.01              | H    | 17      | 5.67              | 5.44  | H    | 17      | 9.13              | 9.27  |
| H    | 18      | 7.25              | H    | 18      | 5.69              | 5.30  | H    | 18      | 6.62              | 6.71  |
| H    | 19      | 7.07              | H    | 19      | 6.18              | 5.79  | H    | 19      | 7.91              | 7.24  |
| H    | 20      | 6.62              | H    | 20      | 5.61              | 5.54  | H    | 20      | 8.44              | 8.39  |
| H    | 21      | 7.60              | H    | 21      | 6.46              | 5.32  | H    | 21      | 7.50              | 6.67  |
| V    | 0       | -0.73             | V    | 0       | -0.03             | 0.23  | V    | 0       | 0.81              | 1.77  |
| V    | 1       | -0.65             | V    | 1       | 3.31              | 2.73  | V    | 1       | 2.95              | 2.37  |
| V    | 2       | 2.84              | V    | 2       | 1.69              | 0.62  | V    | 2       | 0.90              | 0.31  |
| V    | 3       | -1.24             | V    | 3       | 0.18              | 0.34  | V    | 3       | -0.35             | -0.23 |
| V    | 4       | -0.42             | V    | 4       | 2.41              | 2.77  | V    | 4       | -0.16             | 0.07  |
| V    | 5       | 4.54              | V    | 5       | 0.15              | 0.57  | V    | 5       | 5.06              | 2.52  |
| V    | 6       | -1.34             | V    | 6       | -0.08             | 0.04  | V    | 6       | 0.31              | 1.69  |
| V    | 7       | 0.96              | V    | 7       | 1.58              | 0.68  | V    | 7       | 2.44              | 1.36  |
| V    | 8       | 0.37              | V    | 8       | 0.62              | 0.48  | V    | 8       | -0.08             | -0.13 |
| V    | 9       | -0.35             | V    | 9       | 2.77              | 2.54  | V    | 9       | 1.12              | 1.84  |
| V    | 10      | 2.17              | V    | 10      | 0.77              | 0.84  | V    | 10      | 1.73              | 1.88  |
| V    | 11      | 0.81              | V    | 11      | 1.19              | 1.33  | V    | 11      | 1.51              | 0.68  |
| V    | 12      | -0.05             | V    | 12      | 2.42              | 1.79  | V    | 12      | 2.50              | 1.30  |
| V    | 13      | 3.51              | V    | 13      | 3.21              | 2.99  | V    | 13      | 2.94              | 2.35  |
| V    | 14      | 2.55              | V    | 14      | 3.33              | 3.25  | V    | 14      | 3.81              | 2.52  |
| V    | 15      | 1.39              | V    | 15      | 0.66              | 0.63  | V    | 15      | 4.32              | 3.27  |
| V    | 16      | 0.38              | V    | 16      | 2.26              | 2.08  | V    | 16      | 1.61              | 1.26  |
| V    | 17      | 6.14              | V    | 17      | 6.25              | 5.85  | V    | 17      | 7.64              | 7.26  |
| V    | 18      | 6.16              | V    | 18      | 5.37              | 5.67  | V    | 18      | 8.69              | 7.10  |
| V    | 19      | 7.55              | V    | 19      | 6.01              | 5.95  | V    | 19      | 7.41              | 6.56  |
| V    | 20      | 8.38              | V    | 20      | 6.19              | 6.85  | V    | 20      | 7.88              | 8.18  |
| V    | 21      | 6.20              | V    | 21      | 6.40              | 6.83  | V    | 21      | 8.30              | 6.20  |
| H+V  | 0       | -3.43             | H+V  | 0       | -2.97             | -2.68 | H+V  | 0       | -1.70             | -1.25 |
| H+V  | 1       | -1.83             | H+V  | 1       | 1.74              | 0.67  | H+V  | 1       | 0.51              | -0.94 |
| H+V  | 2       | 0.04              | H+V  | 2       | -1.53             | -1.73 | H+V  | 2       | -2.01             | -1.60 |
| H+V  | 3       | -3.77             | H+V  | 3       | -2.25             | -2.34 | H+V  | 3       | -2.37             | -2.72 |
| H+V  | 4       | -2.95             | H+V  | 4       | 0.28              | 0.81  | H+V  | 4       | -2.16             | -2.07 |
| H+V  | 5       | 0.66              | H+V  | 5       | -2.82             | -2.50 | H+V  | 5       | 1.64              | 1.27  |
| H+V  | 6       | -4.11             | H+V  | 6       | -3.21             | -2.72 | H+V  | 6       | -1.83             | -1.06 |
| H+V  | 7       | -0.16             | H+V  | 7       | -0.98             | -1.89 | H+V  | 7       | -0.30             | -0.86 |
| H+V  | 8       | -1.49             | H+V  | 8       | -2.77             | -2.19 | H+V  | 8       | -2.42             | -1.13 |
| H+V  | 9       | -1.92             | H+V  | 9       | 1.06              | 0.26  | H+V  | 9       | -1.42             | -0.46 |
| H+V  | 10      | 0.75              | H+V  | 10      | -1.39             | -0.70 | H+V  | 10      | -0.70             | -0.22 |
| H+V  | 11      | -1.48             | H+V  | 11      | -1.48             | -1.35 | H+V  | 11      | -0.92             | -0.60 |
| H+V  | 12      | -1.17             | H+V  | 12      | -0.22             | -0.42 | H+V  | 12      | -0.31             | -0.46 |
| H+V  | 13      | 0.32              | H+V  | 13      | -0.20             | -0.12 | H+V  | 13      | 0.11              | 0.38  |
| H+V  | 14      | -0.49             | H+V  | 14      | 1.77              | 0.77  | H+V  | 14      | 1.92              | 1.47  |
| H+V  | 15      | -0.12             | H+V  | 15      | -1.55             | -1.39 | H+V  | 15      | 0.86              | 1.25  |
| H+V  | 16      | -1.39             | H+V  | 16      | -0.86             | -0.92 | H+V  | 16      | -0.99             | -0.60 |
| H+V  | 17      | 3.84              | H+V  | 17      | 3.58              | 3.47  | H+V  | 17      | 5.54              | 6.09  |
| H+V  | 18      | 4.35              | H+V  | 18      | 3.11              | 3.31  | H+V  | 18      | 4.83              | 4.81  |
| H+V  | 19      | 5.18              | H+V  | 19      | 3.71              | 3.69  | H+V  | 19      | 4.93              | 4.80  |
| H+V  | 20      | 5.16              | H+V  | 20      | 3.51              | 4.02  | H+V  | 20      | 5.41              | 6.22  |
| H+V  | 21      | 4.54              | H+V  | 21      | 4.01              | 3.88  | H+V  | 21      | 5.19              | 4.39  |

Table 3-14: PD Characterization (State B)

| n258 |         |                   | n260 |         |                   |       | n261 |         |                   |       |
|------|---------|-------------------|------|---------|-------------------|-------|------|---------|-------------------|-------|
| Pol. | Beam ID | $P_{Limit}$ (dBm) | Pol. | Beam ID | $P_{Limit}$ (dBm) |       | Pol. | Beam ID | $P_{Limit}$ (dBm) |       |
|      |         | Freq. Index       |      |         | Freq. Index       |       |      |         | Freq. Index       |       |
|      |         | 0                 |      |         | 4                 | 5     |      |         | 2                 | 3     |
| H    | 0       | -0.54             | H    | 0       | -0.76             | -0.03 | H    | 0       | 0.87              | 1.62  |
| H    | 1       | 2.93              | H    | 1       | 1.96              | 1.92  | H    | 1       | 2.31              | 1.36  |
| H    | 2       | 1.40              | H    | 2       | 0.23              | 0.74  | H    | 2       | 0.62              | 1.26  |
| H    | 3       | -1.17             | H    | 3       | 0.34              | 0.68  | H    | 3       | 0.57              | 0.84  |
| H    | 4       | -0.06             | H    | 4       | 2.49              | 3.80  | H    | 4       | 1.12              | 1.19  |
| H    | 5       | 2.61              | H    | 5       | -0.40             | 0.15  | H    | 5       | 2.81              | 3.99  |
| H    | 6       | -0.95             | H    | 6       | -0.82             | 0.20  | H    | 6       | 0.77              | 1.51  |
| H    | 7       | 3.03              | H    | 7       | 1.51              | 1.77  | H    | 7       | 1.77              | 1.92  |
| H    | 8       | 2.13              | H    | 8       | -0.51             | 0.77  | H    | 8       | 0.90              | 2.25  |
| H    | 9       | 1.88              | H    | 9       | 2.53              | 1.92  | H    | 9       | 0.99              | 1.62  |
| H    | 10      | 1.69              | H    | 10      | 0.96              | 1.54  | H    | 10      | 2.09              | 2.90  |
| H    | 11      | 0.55              | H    | 11      | 0.38              | 0.35  | H    | 11      | 1.79              | 2.41  |
| H    | 12      | 2.08              | H    | 12      | 1.74              | 1.75  | H    | 12      | 1.97              | 2.12  |
| H    | 13      | 1.37              | H    | 13      | 1.03              | 1.13  | H    | 13      | 2.26              | 2.74  |
| H    | 14      | 0.86              | H    | 14      | 4.12              | 2.42  | H    | 14      | 5.54              | 4.91  |
| H    | 15      | 1.91              | H    | 15      | 0.82              | 1.00  | H    | 15      | 2.52              | 3.29  |
| H    | 16      | 1.16              | H    | 16      | 0.67              | 0.50  | H    | 16      | 1.60              | 1.79  |
| H    | 17      | 5.83              | H    | 17      | 5.58              | 5.44  | H    | 17      | 8.67              | 8.96  |
| H    | 18      | 6.99              | H    | 18      | 5.37              | 5.30  | H    | 18      | 6.16              | 6.76  |
| H    | 19      | 6.82              | H    | 19      | 5.91              | 5.79  | H    | 19      | 7.73              | 7.64  |
| H    | 20      | 6.49              | H    | 20      | 5.34              | 5.54  | H    | 20      | 8.16              | 8.49  |
| H    | 21      | 7.32              | H    | 21      | 6.12              | 5.32  | H    | 21      | 7.14              | 6.74  |
| V    | 0       | -1.34             | V    | 0       | -0.13             | 0.10  | V    | 0       | 0.62              | 1.16  |
| V    | 1       | -0.82             | V    | 1       | 2.89              | 2.64  | V    | 1       | 2.71              | 1.92  |
| V    | 2       | 2.09              | V    | 2       | 1.65              | 0.59  | V    | 2       | 0.54              | 0.07  |
| V    | 3       | -1.38             | V    | 3       | 0.04              | 0.31  | V    | 3       | -0.42             | -0.40 |
| V    | 4       | -0.54             | V    | 4       | 2.13              | 2.68  | V    | 4       | -0.42             | -0.21 |
| V    | 5       | 4.10              | V    | 5       | -0.18             | 0.42  | V    | 5       | 5.75              | 2.43  |
| V    | 6       | -1.66             | V    | 6       | -0.16             | -0.08 | V    | 6       | 0.07              | 1.47  |
| V    | 7       | 0.74              | V    | 7       | 1.65              | 0.68  | V    | 7       | 2.30              | 1.29  |
| V    | 8       | 0.90              | V    | 8       | 0.57              | 0.34  | V    | 8       | -0.37             | -0.35 |
| V    | 9       | -0.42             | V    | 9       | 2.47              | 2.25  | V    | 9       | 0.93              | 1.58  |
| V    | 10      | 1.88              | V    | 10      | 0.84              | 1.06  | V    | 10      | 1.77              | 1.81  |
| V    | 11      | 0.68              | V    | 11      | 1.13              | 1.26  | V    | 11      | 1.09              | 0.57  |
| V    | 12      | -0.17             | V    | 12      | 2.40              | 1.68  | V    | 12      | 2.16              | 1.08  |
| V    | 13      | 3.45              | V    | 13      | 3.05              | 2.90  | V    | 13      | 2.74              | 2.46  |
| V    | 14      | 2.40              | V    | 14      | 3.16              | 3.05  | V    | 14      | 3.41              | 2.26  |
| V    | 15      | 1.27              | V    | 15      | 0.48              | 0.52  | V    | 15      | 4.25              | 3.13  |
| V    | 16      | 0.31              | V    | 16      | 2.08              | 1.98  | V    | 16      | 1.34              | 1.07  |
| V    | 17      | 5.95              | V    | 17      | 6.00              | 5.76  | V    | 17      | 7.21              | 7.01  |
| V    | 18      | 6.06              | V    | 18      | 5.29              | 5.59  | V    | 18      | 8.41              | 6.82  |
| V    | 19      | 7.44              | V    | 19      | 5.92              | 5.90  | V    | 19      | 7.19              | 6.67  |
| V    | 20      | 8.26              | V    | 20      | 6.03              | 6.75  | V    | 20      | 7.54              | 7.97  |
| V    | 21      | 6.09              | V    | 21      | 6.27              | 6.86  | V    | 21      | 7.93              | 5.82  |
| H+V  | 0       | -3.73             | H+V  | 0       | -3.04             | -2.67 | H+V  | 0       | -1.98             | -1.28 |
| H+V  | 1       | -1.89             | H+V  | 1       | 1.64              | 0.51  | H+V  | 1       | 0.37              | -0.26 |
| H+V  | 2       | -0.62             | H+V  | 2       | -1.73             | -2.04 | H+V  | 2       | -2.19             | -1.63 |
| H+V  | 3       | -3.77             | H+V  | 3       | -2.59             | -1.46 | H+V  | 3       | -2.72             | -2.92 |
| H+V  | 4       | -3.11             | H+V  | 4       | 0.06              | 0.59  | H+V  | 4       | -2.48             | -2.48 |
| H+V  | 5       | 0.85              | H+V  | 5       | -2.99             | -2.56 | H+V  | 5       | 1.23              | 1.49  |
| H+V  | 6       | -4.29             | H+V  | 6       | -3.11             | -2.53 | H+V  | 6       | -1.73             | -1.28 |
| H+V  | 7       | -0.31             | H+V  | 7       | -0.98             | -1.76 | H+V  | 7       | -0.04             | -0.90 |
| H+V  | 8       | -1.42             | H+V  | 8       | -2.95             | -2.25 | H+V  | 8       | -2.48             | -1.49 |
| H+V  | 9       | -2.13             | H+V  | 9       | 1.06              | -0.13 | H+V  | 9       | -1.53             | -0.86 |
| H+V  | 10      | 0.04              | H+V  | 10      | -1.63             | -1.13 | H+V  | 10      | -0.58             | -0.58 |
| H+V  | 11      | -1.67             | H+V  | 11      | -1.84             | -0.46 | H+V  | 11      | -1.28             | -0.80 |
| H+V  | 12      | -1.42             | H+V  | 12      | -0.49             | 0.40  | H+V  | 12      | -0.63             | -0.65 |
| H+V  | 13      | 0.15              | H+V  | 13      | -0.57             | 0.75  | H+V  | 13      | -0.01             | 0.48  |
| H+V  | 14      | -0.66             | H+V  | 14      | 1.50              | 1.60  | H+V  | 14      | 1.62              | 1.20  |
| H+V  | 15      | -0.35             | H+V  | 15      | -1.93             | -0.48 | H+V  | 15      | 0.76              | 1.04  |
| H+V  | 16      | -1.59             | H+V  | 16      | -1.26             | -0.08 | H+V  | 16      | -1.24             | -0.76 |
| H+V  | 17      | 3.63              | H+V  | 17      | 3.24              | 4.34  | H+V  | 17      | 5.16              | 5.71  |
| H+V  | 18      | 4.17              | H+V  | 18      | 2.75              | 4.19  | H+V  | 18      | 4.49              | 4.56  |
| H+V  | 19      | 5.00              | H+V  | 19      | 3.39              | 4.57  | H+V  | 19      | 4.76              | 4.91  |
| H+V  | 20      | 5.05              | H+V  | 20      | 3.11              | 4.86  | H+V  | 20      | 5.16              | 6.03  |
| H+V  | 21      | 4.35              | H+V  | 21      | 3.62              | 4.83  | H+V  | 21      | 4.87              | 4.09  |

## A Worst Phase Derivation for Beam Pair

For beam pairs, since the relative phase between two beams is unknown, finding the worst-case PD by sweeping the relative phase for all possible angles is required for conservative assessment.

Assuming E-field and H-field of  $beam_a$  are  $\{E_{x_a}, E_{y_a}, E_{z_a}\}$  and  $\{H_{x_a}, H_{y_a}, H_{z_a}\}$ , respectively; E-field and H-field of  $beam_b$  are  $\{E_{x_b}, E_{y_b}, E_{z_b}\}$  and  $\{H_{x_b}, H_{y_b}, H_{z_b}\}$ , respectively; and the relative phase is  $\emptyset$ , for beam pair consisting of  $beam_a$  and  $beam_b$ , the combined E- and H-fields,  $\{E_{x\_pair\_i}, E_{y\_pair\_i}, E_{z\_pair\_i}\}$  and  $\{H_{x\_pair\_i}, H_{y\_pair\_i}, H_{z\_pair\_i}\}$ , can be expressed as:

$$Ex(\emptyset)_{pair\_i} = E_{x_a} + E_{x_b} \times e^{-j\omega\emptyset}$$

$$Ey(\emptyset)_{pair\_i} = E_{y_a} + E_{y_b} \times e^{-j\omega\emptyset}$$

$$Ez(\emptyset)_{pair\_i} = E_{z_a} + E_{z_b} \times e^{-j\omega\emptyset}$$

$$Hx(\emptyset)_{pair\_i} = H_{x_a} + H_{x_b} \times e^{-j\omega\emptyset}$$

$$Hy(\emptyset)_{pair\_i} = H_{y_a} + H_{y_b} \times e^{-j\omega\emptyset}$$

$$Hz(\emptyset)_{pair\_i} = H_{z_a} + H_{z_b} \times e^{-j\omega\emptyset}$$

The combined PD can then be calculated:

$$PDx(\emptyset)_{pair\_i} = Ey(\emptyset)_{pair\_i} \times Hz(\emptyset)_{pair\_i}^* - Ez(\emptyset)_{pair\_i} \times Hy(\emptyset)_{pair\_i}^*$$

$$PDy(\emptyset)_{pair\_i} = Ez(\emptyset)_{pair\_i} \times Hx(\emptyset)_{pair\_i}^* - Ex(\emptyset)_{pair\_i} \times Hz(\emptyset)_{pair\_i}^*$$

$$PDz(\emptyset)_{pair\_i} = Ex(\emptyset)_{pair\_i} \times Hy(\emptyset)_{pair\_i}^* - Ey(\emptyset)_{pair\_i} \times Hx(\emptyset)_{pair\_i}^*$$

$$PD(\emptyset) = \frac{1}{2} \sqrt{Re\{PDx(\emptyset)\}_{pair\_i}^2 + Re\{PDy(\emptyset)\}_{pair\_i}^2 + Re\{PDz(\emptyset)\}_{pair\_i}^2}$$

Sweep  $\emptyset$  from 0 degree to 360 degree to find the highest PD (out of low, mid, and high channel) and its corresponding  $\emptyset$ ,  $\emptyset_{worstcase}$ , for all the beam pairs specified in the codebook. The worst-case scaling factor  $s(i)$  for beam pair should be determined with  $\emptyset(i)_{worstcase}$ .

## B Simulated Input Power Limit

Table B-1 to Table B-2 lists input power limit per frequency index per applicable band for all the beams that DUT supports for both State A and State B.

**Table B-1: Simulated  $P_{\text{Limit}}$  for n258, n260, and n261 (State A)**

| n258 |         |                 | n260 |         |                 |       | n261 |         |                 |       |
|------|---------|-----------------|------|---------|-----------------|-------|------|---------|-----------------|-------|
| Pol. | Beam ID | Frequency Index | Pol. | Beam ID | Frequency Index |       | Pol. | Beam ID | Frequency Index |       |
|      |         | 0               |      |         | 4               | 5     |      |         | 2               | 3     |
| H    | 0       | 0.88            | H    | 0       | 2.51            | 2.46  | H    | 0       | 1.80            | 2.10  |
| H    | 1       | 2.20            | H    | 1       | 5.41            | 5.87  | H    | 1       | 3.98            | 4.11  |
| H    | 2       | 2.49            | H    | 2       | 1.40            | 1.94  | H    | 2       | 1.89            | 2.32  |
| H    | 3       | 1.69            | H    | 3       | 3.42            | 3.27  | H    | 3       | 2.76            | 2.56  |
| H    | 4       | 1.58            | H    | 4       | 3.35            | 3.87  | H    | 4       | 1.99            | 2.34  |
| H    | 5       | 3.77            | H    | 5       | 1.39            | 1.72  | H    | 5       | 3.76            | 4.12  |
| H    | 6       | 0.43            | H    | 6       | 2.04            | 2.07  | H    | 6       | 1.96            | 2.55  |
| H    | 7       | 2.64            | H    | 7       | 1.51            | 2.31  | H    | 7       | 3.84            | 3.87  |
| H    | 8       | 3.08            | H    | 8       | 1.82            | 2.26  | H    | 8       | 3.24            | 3.32  |
| H    | 9       | 4.00            | H    | 9       | 2.36            | 3.71  | H    | 9       | 2.00            | 2.29  |
| H    | 10      | 3.18            | H    | 10      | 4.32            | 3.87  | H    | 10      | 3.08            | 3.11  |
| H    | 11      | 3.25            | H    | 11      | 3.96            | 4.29  | H    | 11      | 4.44            | 5.14  |
| H    | 12      | 4.92            | H    | 12      | 5.20            | 5.70  | H    | 12      | 4.59            | 4.67  |
| H    | 13      | 4.01            | H    | 13      | 4.54            | 5.07  | H    | 13      | 4.76            | 5.08  |
| H    | 14      | 3.55            | H    | 14      | 7.51            | 6.37  | H    | 14      | 8.11            | 7.50  |
| H    | 15      | 4.71            | H    | 15      | 4.33            | 4.95  | H    | 15      | 5.03            | 5.96  |
| H    | 16      | 3.99            | H    | 16      | 4.22            | 4.45  | H    | 16      | 4.15            | 4.33  |
| H    | 17      | 8.48            | H    | 17      | 8.95            | 9.39  | H    | 17      | 11.36           | 11.96 |
| H    | 18      | 9.72            | H    | 18      | 8.95            | 9.24  | H    | 18      | 8.86            | 9.38  |
| H    | 19      | 9.54            | H    | 19      | 9.45            | 9.73  | H    | 19      | 10.15           | 9.92  |
| H    | 20      | 9.10            | H    | 20      | 8.88            | 9.48  | H    | 20      | 10.68           | 11.06 |
| H    | 21      | 10.07           | H    | 21      | 9.73            | 9.27  | H    | 21      | 9.74            | 9.35  |
| V    | 0       | 0.86            | V    | 0       | 1.63            | 2.13  | V    | 0       | 1.79            | 2.16  |
| V    | 1       | 1.24            | V    | 1       | 2.75            | 2.71  | V    | 1       | 3.22            | 2.73  |
| V    | 2       | 3.60            | V    | 2       | 3.28            | 3.11  | V    | 2       | 2.81            | 3.11  |
| V    | 3       | 0.28            | V    | 3       | 3.45            | 3.77  | V    | 3       | 1.53            | 1.73  |
| V    | 4       | 2.02            | V    | 4       | 2.44            | 3.18  | V    | 4       | 1.13            | 1.21  |
| V    | 5       | 4.27            | V    | 5       | 1.82            | 2.65  | V    | 5       | 4.11            | 4.03  |
| V    | 6       | 0.45            | V    | 6       | 1.98            | 2.64  | V    | 6       | 1.67            | 2.11  |
| V    | 7       | 1.89            | V    | 7       | 3.29            | 3.37  | V    | 7       | 3.20            | 2.51  |
| V    | 8       | 2.63            | V    | 8       | 2.77            | 2.78  | V    | 8       | 1.64            | 1.61  |
| V    | 9       | 1.41            | V    | 9       | 2.75            | 2.71  | V    | 9       | 2.15            | 2.49  |
| V    | 10      | 2.66            | V    | 10      | 2.57            | 3.10  | V    | 10      | 2.96            | 2.99  |
| V    | 11      | 3.25            | V    | 11      | 4.48            | 4.76  | V    | 11      | 3.41            | 3.48  |
| V    | 12      | 2.39            | V    | 12      | 5.71            | 5.21  | V    | 12      | 4.41            | 4.11  |
| V    | 13      | 5.95            | V    | 13      | 6.50            | 6.42  | V    | 13      | 4.86            | 5.16  |
| V    | 14      | 5.00            | V    | 14      | 6.63            | 6.69  | V    | 14      | 5.71            | 5.33  |
| V    | 15      | 3.84            | V    | 15      | 3.94            | 4.05  | V    | 15      | 6.23            | 6.08  |
| V    | 16      | 2.82            | V    | 16      | 5.55            | 5.52  | V    | 16      | 3.52            | 4.06  |
| V    | 17      | 8.58            | V    | 17      | 9.53            | 9.29  | V    | 17      | 9.55            | 10.07 |
| V    | 18      | 8.59            | V    | 18      | 8.65            | 9.08  | V    | 18      | 10.59           | 9.91  |
| V    | 19      | 9.99            | V    | 19      | 9.30            | 9.37  | V    | 19      | 9.32            | 9.37  |
| V    | 20      | 10.82           | V    | 20      | 9.47            | 10.28 | V    | 20      | 9.78            | 10.99 |
| V    | 21      | 8.63            | V    | 21      | 9.67            | 10.27 | V    | 21      | 10.21           | 9.01  |
| H+V  | 0       | -2.14           | H+V  | 0       | -0.93           | -0.71 | H+V  | 0       | -1.21           | -0.86 |
| H+V  | 1       | -0.71           | H+V  | 1       | 0.94            | 1.14  | H+V  | 1       | 0.81            | 0.43  |
| H+V  | 2       | 0.03            | H+V  | 2       | -0.75           | -0.49 | H+V  | 2       | -0.54           | -0.24 |
| H+V  | 3       | -2.07           | H+V  | 3       | 0.43            | 0.52  | H+V  | 3       | -0.90           | -0.88 |
| H+V  | 4       | -1.19           | H+V  | 4       | -0.03           | 0.52  | H+V  | 4       | -1.47           | -1.27 |
| H+V  | 5       | 1.10            | H+V  | 5       | -1.41           | -0.85 | H+V  | 5       | 0.98            | 1.11  |
| H+V  | 6       | -2.55           | H+V  | 6       | -0.99           | -0.66 | H+V  | 6       | -1.15           | -0.61 |
| H+V  | 7       | -0.48           | H+V  | 7       | -0.70           | -0.20 | H+V  | 7       | 0.58            | 0.15  |
| H+V  | 8       | -0.03           | H+V  | 8       | -0.74           | -0.49 | H+V  | 8       | -0.60           | -0.61 |
| H+V  | 9       | -0.44           | H+V  | 9       | -0.41           | 0.20  | H+V  | 9       | -0.93           | -0.59 |
| H+V  | 10      | 0.57            | H+V  | 10      | 0.35            | 0.46  | H+V  | 10      | 0.09            | 0.12  |
| H+V  | 11      | 0.27            | H+V  | 11      | 1.21            | 1.51  | H+V  | 11      | 0.90            | 1.24  |
| H+V  | 12      | 0.59            | H+V  | 12      | 2.47            | 2.44  | H+V  | 12      | 1.51            | 1.38  |
| H+V  | 13      | 2.08            | H+V  | 13      | 2.48            | 2.74  | H+V  | 13      | 1.94            | 2.22  |
| H+V  | 14      | 1.27            | H+V  | 14      | 4.47            | 3.62  | H+V  | 14      | 3.74            | 3.31  |
| H+V  | 15      | 1.64            | H+V  | 15      | 1.14            | 1.47  | H+V  | 15      | 2.68            | 3.08  |
| H+V  | 16      | 0.37            | H+V  | 16      | 1.82            | 1.95  | H+V  | 16      | 0.83            | 1.24  |
| H+V  | 17      | 5.60            | H+V  | 17      | 6.27            | 6.34  | H+V  | 17      | 7.37            | 7.94  |
| H+V  | 18      | 6.11            | H+V  | 18      | 5.79            | 6.16  | H+V  | 18      | 6.66            | 6.64  |
| H+V  | 19      | 6.94            | H+V  | 19      | 6.41            | 6.54  | H+V  | 19      | 6.75            | 6.64  |
| H+V  | 20      | 6.93            | H+V  | 20      | 6.19            | 6.87  | H+V  | 20      | 7.23            | 8.05  |
| H+V  | 21      | 6.30            | H+V  | 21      | 6.70            | 6.75  | H+V  | 21      | 7.01            | 6.23  |

**Table B-2: Simulated P<sub>Limit</sub> for n258, n260, and n261 (State B)**

| n258 |         |                 | n260 |         |                 | n261 |         |                 |
|------|---------|-----------------|------|---------|-----------------|------|---------|-----------------|
| Pol. | Beam ID | Frequency Index | Pol. | Beam ID | Frequency Index | Pol. | Beam ID | Frequency Index |
|      |         | 0               |      |         | 4 5             |      |         | 2 3             |
| H    | 0       | 0.89            | H    | 0       | 2.53 2.45       | H    | 0       | 1.74 2.07       |
| H    | 1       | 2.09            | H    | 1       | 5.55 5.71       | H    | 1       | 3.96 3.96       |
| H    | 2       | 2.46            | H    | 2       | 1.47 1.94       | H    | 2       | 2.05 2.31       |
| H    | 3       | 1.48            | H    | 3       | 3.52 3.25       | H    | 3       | 2.87 2.57       |
| H    | 4       | 1.57            | H    | 4       | 3.40 3.95       | H    | 4       | 2.11 2.44       |
| H    | 5       | 3.89            | H    | 5       | 1.45 1.72       | H    | 5       | 3.70 3.99       |
| H    | 6       | 0.42            | H    | 6       | 2.03 2.11       | H    | 6       | 1.87 2.50       |
| H    | 7       | 2.47            | H    | 7       | 1.65 2.32       | H    | 7       | 3.74 3.71       |
| H    | 8       | 3.02            | H    | 8       | 1.80 2.27       | H    | 8       | 3.48 3.58       |
| H    | 9       | 3.83            | H    | 9       | 2.39 3.66       | H    | 9       | 1.90 2.32       |
| H    | 10      | 3.05            | H    | 10      | 4.39 3.88       | H    | 10      | 3.10 3.38       |
| H    | 11      | 3.20            | H    | 11      | 3.96 4.31       | H    | 11      | 4.37 5.01       |
| H    | 12      | 4.73            | H    | 12      | 5.32 5.59       | H    | 12      | 4.54 4.72       |
| H    | 13      | 4.02            | H    | 13      | 4.61 5.07       | H    | 13      | 4.84 5.34       |
| H    | 14      | 3.51            | H    | 14      | 7.70 6.33       | H    | 14      | 8.12 7.51       |
| H    | 15      | 4.56            | H    | 15      | 4.40 5.03       | H    | 15      | 5.10 5.89       |
| H    | 16      | 3.81            | H    | 16      | 4.25 4.40       | H    | 16      | 4.18 4.39       |
| H    | 17      | 8.48            | H    | 17      | 9.16 9.38       | H    | 17      | 11.25 11.56     |
| H    | 18      | 9.64            | H    | 18      | 8.95 9.25       | H    | 18      | 8.74 9.36       |
| H    | 19      | 9.47            | H    | 19      | 9.50 9.72       | H    | 19      | 10.31 10.24     |
| H    | 20      | 9.14            | H    | 20      | 8.92 9.45       | H    | 20      | 10.73 11.09     |
| H    | 21      | 9.97            | H    | 21      | 9.71 9.31       | H    | 21      | 9.72 9.34       |
| V    | 0       | 0.74            | V    | 0       | 1.60 2.14       | V    | 0       | 1.83 2.11       |
| V    | 1       | 1.15            | V    | 1       | 2.81 2.79       | V    | 1       | 2.99 2.64       |
| V    | 2       | 3.31            | V    | 2       | 3.17 3.01       | V    | 2       | 2.78 3.04       |
| V    | 3       | 0.19            | V    | 3       | 3.46 3.80       | V    | 3       | 1.61 1.68       |
| V    | 4       | 1.88            | V    | 4       | 2.47 3.32       | V    | 4       | 1.30 1.34       |
| V    | 5       | 4.08            | V    | 5       | 1.80 2.71       | V    | 5       | 4.24 4.23       |
| V    | 6       | 0.33            | V    | 6       | 2.03 2.68       | V    | 6       | 1.62 1.98       |
| V    | 7       | 1.66            | V    | 7       | 3.19 3.26       | V    | 7       | 3.12 2.41       |
| V    | 8       | 2.37            | V    | 8       | 2.69 2.73       | V    | 8       | 1.88 1.61       |
| V    | 9       | 1.32            | V    | 9       | 2.81 2.79       | V    | 9       | 2.12 2.42       |
| V    | 10      | 2.42            | V    | 10      | 2.51 3.21       | V    | 10      | 3.04 2.95       |
| V    | 11      | 3.10            | V    | 11      | 4.54 4.75       | V    | 11      | 3.34 3.54       |
| V    | 12      | 2.25            | V    | 12      | 5.82 5.17       | V    | 12      | 4.41 4.04       |
| V    | 13      | 5.87            | V    | 13      | 6.47 6.39       | V    | 13      | 4.99 5.43       |
| V    | 14      | 4.82            | V    | 14      | 6.58 6.54       | V    | 14      | 5.66 5.23       |
| V    | 15      | 3.69            | V    | 15      | 3.90 4.01       | V    | 15      | 6.50 6.10       |
| V    | 16      | 2.73            | V    | 16      | 5.49 5.47       | V    | 16      | 3.59 4.04       |
| V    | 17      | 8.37            | V    | 17      | 9.41 9.25       | V    | 17      | 9.47 9.97       |
| V    | 18      | 8.47            | V    | 18      | 8.70 9.08       | V    | 18      | 10.66 9.79      |
| V    | 19      | 9.86            | V    | 19      | 9.34 9.39       | V    | 19      | 9.44 9.64       |
| V    | 20      | 10.68           | V    | 20      | 9.44 10.24      | V    | 20      | 9.80 10.94      |
| V    | 21      | 8.51            | V    | 21      | 9.69 10.35      | V    | 21      | 10.19 8.79      |
| H+V  | 0       | -2.19           | H+V  | 0       | -0.94 -0.71     | H+V  | 0       | -1.22 -0.91     |
| H+V  | 1       | -0.85           | H+V  | 1       | 1.05 1.16       | H+V  | 1       | 0.72 0.33       |
| H+V  | 2       | -0.12           | H+V  | 2       | -0.75 -0.53     | H+V  | 2       | -0.41 -0.27     |
| H+V  | 3       | -2.19           | H+V  | 3       | 0.49 0.52       | H+V  | 3       | -0.81 -0.90     |
| H+V  | 4       | -1.27           | H+V  | 4       | 0.03 0.63       | H+V  | 4       | -1.32 -1.15     |
| H+V  | 5       | 1.06            | H+V  | 5       | -1.39 -0.83     | H+V  | 5       | 1.04 1.13       |
| H+V  | 6       | -2.62           | H+V  | 6       | -0.97 -0.62     | H+V  | 6       | -1.21 -0.71     |
| H+V  | 7       | -0.69           | H+V  | 7       | -0.66 -0.25     | H+V  | 7       | 0.52 0.03       |
| H+V  | 8       | -0.19           | H+V  | 8       | -0.77 -0.51     | H+V  | 8       | -0.36 -0.50     |
| H+V  | 9       | -0.56           | H+V  | 9       | -0.36 0.22      | H+V  | 9       | -0.99 -0.61     |
| H+V  | 10      | 0.43            | H+V  | 10      | 0.35 0.53       | H+V  | 10      | 0.14 0.22       |
| H+V  | 11      | 0.18            | H+V  | 11      | 1.24 1.51       | H+V  | 11      | 0.84 1.22       |
| H+V  | 12      | 0.43            | H+V  | 12      | 2.58 2.37       | H+V  | 12      | 1.49 1.37       |
| H+V  | 13      | 2.00            | H+V  | 13      | 2.50 2.73       | H+V  | 13      | 2.10 2.50       |
| H+V  | 14      | 1.19            | H+V  | 14      | 4.57 3.58       | H+V  | 14      | 3.73 3.22       |
| H+V  | 15      | 1.49            | H+V  | 15      | 1.15 1.49       | H+V  | 15      | 2.87 3.06       |
| H+V  | 16      | 0.25            | H+V  | 16      | 1.82 1.90       | H+V  | 16      | 0.88 1.26       |
| H+V  | 17      | 5.47            | H+V  | 17      | 6.31 6.32       | H+V  | 17      | 7.27 7.73       |
| H+V  | 18      | 6.02            | H+V  | 18      | 5.82 6.16       | H+V  | 18      | 6.60 6.58       |
| H+V  | 19      | 6.84            | H+V  | 19      | 6.46 6.54       | H+V  | 19      | 6.88 6.93       |
| H+V  | 20      | 6.90            | H+V  | 20      | 6.19 6.83       | H+V  | 20      | 7.27 8.05       |
| H+V  | 21      | 6.19            | H+V  | 21      | 6.69 6.80       | H+V  | 21      | 6.98 6.11       |

**END OF REPORT**