

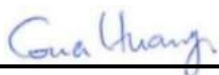
# FCC SAR TEST REPORT

FCC ID : IHDT56XL1  
Equipment : Mobile 5G MOD  
Brand Name : Motorola  
Applicant : Motorola Mobility LLC  
222 W,Merchandise Mart Plaza, Chicago IL  
60654 USA  
Manufacturer : Motorola Mobility LLC  
222 W,Merchandise Mart Plaza, Chicago IL  
60654 USA  
Standard : FCC 47 CFR Part 2 (2.1093)  
ANSI/IEEE C95.1-1992  
IEEE 1528-2013

The product was received on Sep. 28, 2018 and testing was started from Oct. 15, 2018 and completed on Dec. 18, 2018. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Cona Huang / Deputy Manager

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## History of this test report

| Report No. | Version | Description             | Issued Date   |
|------------|---------|-------------------------|---------------|
| FA890514A  | 01      | Initial issue of report | Dec. 27, 2018 |
|            |         |                         |               |
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|            |         |                         |               |

## 1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Motorola Mobility LLC, Mobile 5G MOD are as follows.

| Equipment Class  | Frequency Band  | Highest SAR Summary      |                               |                             |                                      | Highest Simultaneous Transmission<br>1g SAR (W/kg) |
|------------------|-----------------|--------------------------|-------------------------------|-----------------------------|--------------------------------------|----------------------------------------------------|
|                  |                 | Head<br>(Separation 0mm) | Body-worn<br>(Separation 5mm) | Hotspot<br>(Separation 5mm) | Product Specific<br>(Separation 0mm) |                                                    |
|                  |                 | 1g SAR (W/kg)            |                               |                             | 10g SAR (W/kg)                       |                                                    |
| Licensed         | LTE Band 2      | 0.31                     | 1.38                          | 1.38                        | 0.40                                 | 1.59                                               |
|                  | LTE Band 5      | 0.19                     | 1.33                          | 1.33                        | 0.78                                 |                                                    |
|                  | LTE Band 13     | 0.16                     | 1.38                          | 1.38                        | 0.93                                 |                                                    |
|                  | LTE Band 48     | 0.13                     | 1.24                          | 1.24                        | 1.62                                 |                                                    |
|                  | LTE Band 4 / 66 | 0.17                     | 1.27                          | 1.27                        | 0.51                                 |                                                    |
| Date of Testing: |                 | 2018/10/15 ~ 2018/12/18  |                               |                             |                                      |                                                    |

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test (FCC). This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR, 4.0 W/kg for Product Specific 10g SAR) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications

**Reviewed by: Jason Wang**

**Report Producer: Wan Liu**

## 2. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 648474 D03 v01r04 Evaluation and Approval Considerations for Handsets with Specific Wireless Charging Battery Covers
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01



### 3. Equipment Under Test (EUT) Information

#### 3.1 General Information

| Product Feature & Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Equipment Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Mobile 5G MOD                                                                                                                                                                                                                                                         |
| Brand Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Motorola                                                                                                                                                                                                                                                              |
| FCC ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | IHDT56XL1                                                                                                                                                                                                                                                             |
| Wireless Technology and Frequency Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | LTE Band 2: 1850.7 MHz ~ 1909.3 MHz<br>LTE Band 4: 1710.7 MHz ~ 1754.3 MHz<br>LTE Band 5: 824.7 MHz ~ 848.3 MHz<br>LTE Band 13: 779.5 MHz ~ 784.5 MHz<br>LTE Band 66: 1710.7 MHz ~ 1779.3 MHz<br>LTE Band 48: 3552.5 MHz ~ 3697.5 MHz<br>5G NR n261: 27.5GHz~28.35GHz |
| Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | LTE: QPSK, 16QAM, 64QAM<br>5G NR n261: QPSK, 16QAM, and 64QAM for CP-OFDM                                                                                                                                                                                             |
| HW Version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DVT2                                                                                                                                                                                                                                                                  |
| SW Version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | PPZ29.67                                                                                                                                                                                                                                                              |
| EUT Stage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Identical Prototype                                                                                                                                                                                                                                                   |
| <b>Remark:</b> <ol style="list-style-type: none"><li>1. The device operates only when it's attached on the specific phone IHDT56XJ1.</li><li>2. This MOD has no capability to operate as a Wi-Fi wireless router. But Mobile Hotspot can be supported using Phone Wi-Fi wireless router when MOD is attached with the phone.</li><li>3. The device employs proximity sensors that detect the presence of the user's body and Product Specific of the device. When these conditions are detected, LTE B2/B4/B5/B66/B48 reduced power will be active.</li><li>4. When the Mod and the Phone WWAN transmit simultaneously, power reduction will be active to limit the maximum power of LTE B2/B4/B5/B66/B48 for different RF exposure conditions.</li><li>5. Detail power management scheme for different RF exposure conditions is illustrated in the Operation Description.</li><li>6. Simultaneous transmission analysis with 5G NR n261 power density were assessed in separate report (Sporton report number: FA890514B)</li></ol> |                                                                                                                                                                                                                                                                       |

### 3.2 General LTE SAR Test and Reporting Considerations

| Summarized necessary items addressed in KDB 941225 D05 v02r05           |                                                                                                                                                                                                                                                                                  |                                                               |                 |             |                 |             |                  |             |                  |             |                  |             |
|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------------|-------------|-----------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|
| FCC ID                                                                  | IHDT56XL1                                                                                                                                                                                                                                                                        |                                                               |                 |             |                 |             |                  |             |                  |             |                  |             |
| Equipment Name                                                          | Mobile 5G MOD                                                                                                                                                                                                                                                                    |                                                               |                 |             |                 |             |                  |             |                  |             |                  |             |
| Operating Frequency Range of each LTE transmission band                 | LTE Band 2: 1850.7 MHz ~ 1909.3 MHz<br>LTE Band 4: 1710.7 MHz ~ 1754.3 MHz<br>LTE Band 5: 824.7 MHz ~ 848.3 MHz<br>LTE Band 13: 779.5 MHz ~ 784.5 MHz<br>LTE Band 48: 3552.5 MHz ~ 3697.5 MHz<br>LTE Band 66: 1710.7 MHz ~ 1779.3 MHz                                            |                                                               |                 |             |                 |             |                  |             |                  |             |                  |             |
| Channel Bandwidth                                                       | LTE Band 02:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 04:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 05:1.4MHz, 3MHz, 5MHz, 10MHz<br>LTE Band 13: 5MHz, 10MHz<br>LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz |                                                               |                 |             |                 |             |                  |             |                  |             |                  |             |
| uplink modulations used                                                 | QPSK / 16QAM / 64QAM                                                                                                                                                                                                                                                             |                                                               |                 |             |                 |             |                  |             |                  |             |                  |             |
| LTE Voice / Data requirements                                           | Data only                                                                                                                                                                                                                                                                        |                                                               |                 |             |                 |             |                  |             |                  |             |                  |             |
| LTE MPR permanently built-in by design                                  | Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3                                                                                                                                                                                                          |                                                               |                 |             |                 |             |                  |             |                  |             |                  |             |
|                                                                         | Modulation                                                                                                                                                                                                                                                                       | Channel bandwidth / Transmission bandwidth (N <sub>RB</sub> ) |                 |             |                 |             |                  | MPR (dB)    |                  |             |                  |             |
|                                                                         |                                                                                                                                                                                                                                                                                  | 1.4 MHz                                                       | 3.0 MHz         | 5 MHz       | 10 MHz          | 15 MHz      | 20 MHz           |             |                  |             |                  |             |
|                                                                         | QPSK                                                                                                                                                                                                                                                                             | > 5                                                           | > 4             | > 8         | > 12            | > 16        | > 18             | ≤ 1         |                  |             |                  |             |
|                                                                         | 16 QAM                                                                                                                                                                                                                                                                           | ≤ 5                                                           | ≤ 4             | ≤ 8         | ≤ 12            | ≤ 16        | ≤ 18             | ≤ 1         |                  |             |                  |             |
|                                                                         | 16 QAM                                                                                                                                                                                                                                                                           | > 5                                                           | > 4             | > 8         | > 12            | > 16        | > 18             | ≤ 2         |                  |             |                  |             |
|                                                                         | 64 QAM                                                                                                                                                                                                                                                                           | ≤ 5                                                           | ≤ 4             | ≤ 8         | ≤ 12            | ≤ 16        | ≤ 18             | ≤ 2         |                  |             |                  |             |
|                                                                         | 64 QAM                                                                                                                                                                                                                                                                           | > 5                                                           | > 4             | > 8         | > 12            | > 16        | > 18             | ≤ 3         |                  |             |                  |             |
| 256 QAM                                                                 | ≥ 1                                                                                                                                                                                                                                                                              |                                                               |                 |             |                 |             | ≤ 5              |             |                  |             |                  |             |
| LTE A-MPR                                                               | In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)                                                                                    |                                                               |                 |             |                 |             |                  |             |                  |             |                  |             |
| Spectrum plots for RB configuration                                     | A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.                                                                           |                                                               |                 |             |                 |             |                  |             |                  |             |                  |             |
| Power reduction applied to satisfy SAR compliance                       | Yes, power reduction is active for LTE B2/B4/B5/B66/B48, the detail power reduction description is including in the operation description                                                                                                                                        |                                                               |                 |             |                 |             |                  |             |                  |             |                  |             |
| LTE Carrier Aggregation Combinations                                    | DL Inter-Band and Intra-Band possible combinations and the detail power measurement please referred to section 11.<br>UL CA is NOT supported                                                                                                                                     |                                                               |                 |             |                 |             |                  |             |                  |             |                  |             |
| LTE Carrier Aggregation Additional Information                          | This device supports maximum of 5 carriers in the downlink Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.                                             |                                                               |                 |             |                 |             |                  |             |                  |             |                  |             |
| Transmission (H, M, L) channel numbers and frequencies in each LTE band |                                                                                                                                                                                                                                                                                  |                                                               |                 |             |                 |             |                  |             |                  |             |                  |             |
| LTE Band 2                                                              |                                                                                                                                                                                                                                                                                  |                                                               |                 |             |                 |             |                  |             |                  |             |                  |             |
|                                                                         | Bandwidth 1.4 MHz                                                                                                                                                                                                                                                                |                                                               | Bandwidth 3 MHz |             | Bandwidth 5 MHz |             | Bandwidth 10 MHz |             | Bandwidth 15 MHz |             | Bandwidth 20 MHz |             |
|                                                                         | Ch. #                                                                                                                                                                                                                                                                            | Freq. (MHz)                                                   | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |
| L                                                                       | 18607                                                                                                                                                                                                                                                                            | 1850.7                                                        | 18615           | 1851.5      | 18625           | 1852.5      | 18650            | 1855        | 18675            | 1857.5      | 18700            | 1860        |
| M                                                                       | 18900                                                                                                                                                                                                                                                                            | 1880                                                          | 18900           | 1880        | 18900           | 1880        | 18900            | 1880        | 18900            | 1880        | 18900            | 1880        |
| H                                                                       | 19193                                                                                                                                                                                                                                                                            | 1909.3                                                        | 19185           | 1908.5      | 19175           | 1907.5      | 19150            | 1905        | 19125            | 1902.5      | 19100            | 1900        |
| LTE Band 4                                                              |                                                                                                                                                                                                                                                                                  |                                                               |                 |             |                 |             |                  |             |                  |             |                  |             |
|                                                                         | Bandwidth 1.4 MHz                                                                                                                                                                                                                                                                |                                                               | Bandwidth 3 MHz |             | Bandwidth 5 MHz |             | Bandwidth 10 MHz |             | Bandwidth 15 MHz |             | Bandwidth 20 MHz |             |
|                                                                         | Ch. #                                                                                                                                                                                                                                                                            | Freq. (MHz)                                                   | Ch. #           | Freq. (MHz) | Ch. #           | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |
| L                                                                       | 19957                                                                                                                                                                                                                                                                            | 1710.7                                                        | 19965           | 1711.5      | 19975           | 1712.5      | 20000            | 1715        | 20025            | 1717.5      | 20050            | 1720        |
| M                                                                       | 20175                                                                                                                                                                                                                                                                            | 1732.5                                                        | 20175           | 1732.5      | 20175           | 1732.5      | 20175            | 1732.5      | 20175            | 1732.5      | 20175            | 1732.5      |
| H                                                                       | 20393                                                                                                                                                                                                                                                                            | 1754.3                                                        | 20385           | 1753.5      | 20375           | 1752.5      | 20350            | 1750        | 20325            | 1747.5      | 20300            | 1745        |

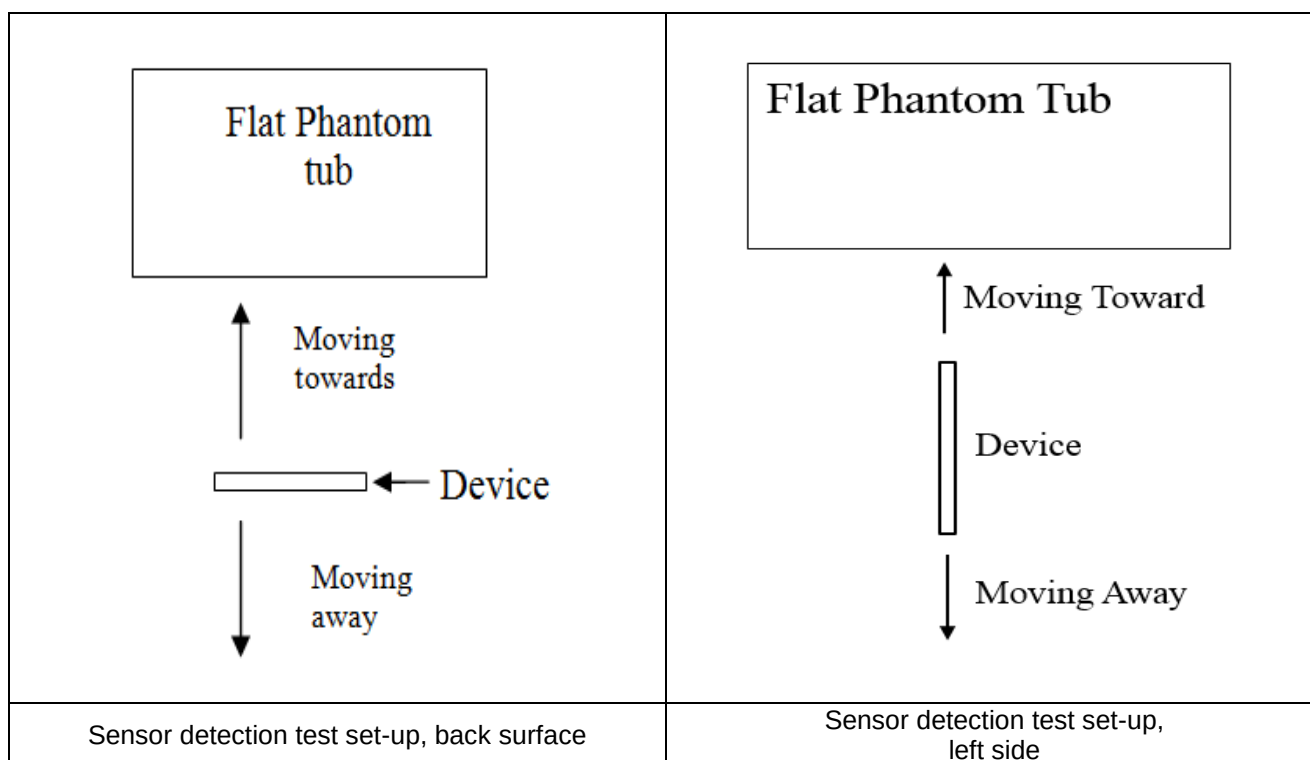


| LTE Band 5  |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |
|-------------|-------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|
|             | Bandwidth 1.4 MHz |             | Bandwidth 3 MHz  |             | Bandwidth 5 MHz  |             | Bandwidth 10 MHz |             |                  |             |                  |             |
|             | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |                  |             |                  |             |
| L           | 20407             | 824.7       | 20415            | 825.5       | 20425            | 826.5       | 20450            | 829         |                  |             |                  |             |
| M           | 20525             | 836.5       | 20525            | 836.5       | 20525            | 836.5       | 20525            | 836.5       |                  |             |                  |             |
| H           | 20643             | 848.3       | 20635            | 847.5       | 20625            | 846.5       | 20600            | 844         |                  |             |                  |             |
| LTE Band 13 |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |
|             | Bandwidth 5 MHz   |             |                  |             | Bandwidth 10 MHz |             |                  |             |                  |             |                  |             |
|             | Channel #         |             | Freq.(MHz)       |             | Channel #        |             | Freq.(MHz)       |             |                  |             |                  |             |
| L           | 23205             |             | 779.5            |             | 23230            |             | 782              |             |                  |             |                  |             |
| M           | 23230             |             | 782              |             |                  |             |                  |             |                  |             |                  |             |
| H           | 23255             |             | 784.5            |             |                  |             |                  |             |                  |             |                  |             |
| LTE Band 48 |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |
|             | Bandwidth 5 MHz   |             | Bandwidth 10 MHz |             | Bandwidth 15 MHz |             | Bandwidth 20 MHz |             |                  |             |                  |             |
|             | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |                  |             |                  |             |
| L           | 55265             | 3552.5      | 55290            | 3555        | 55315            | 3557.5      | 55340            | 3560        |                  |             |                  |             |
| L<br>M      | 55810             | 3607        | 55815            | 3607.5      | 55820            | 3608        | 55830            | 3609        |                  |             |                  |             |
| H<br>M      | 56170             | 3643        | 56165            | 3642.5      | 56160            | 3642        | 56150            | 3641        |                  |             |                  |             |
| H           | 56715             | 3697.5      | 56690            | 3695        | 56665            | 3692.5      | 56640            | 3690        |                  |             |                  |             |
| LTE Band 66 |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |
|             | Bandwidth 1.4 MHz |             | Bandwidth 3 MHz  |             | Bandwidth 5 MHz  |             | Bandwidth 10 MHz |             | Bandwidth 15 MHz |             | Bandwidth 20 MHz |             |
|             | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |
| L           | 131979            | 1710.7      | 131987           | 1711.5      | 131997           | 1712.5      | 132022           | 1715        | 132047           | 1717.5      | 132072           | 1720        |
| M           | 132322            | 1745        | 132322           | 1745        | 132322           | 1745        | 132322           | 1745        | 132322           | 1745        | 132322           | 1745        |
| H           | 132665            | 1779.3      | 132657           | 1778.5      | 132647           | 1777.5      | 132622           | 1775        | 132597           | 1772.5      | 132572           | 1770        |

### **3.3 Proximity Sensor Triggering Test**

#### **<Proximity Sensor Triggering Distance>:**

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (3500MHz) and lowest (750MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensors placed coincident with antenna elements of the phone are utilized to determine when the device comes in proximity of the user's body at the back and left side of the device.
3. This device has designed to use the antennas as capacitor sensors. Antenna 1 (LTE Band 2/4/5/13/66) and Antenna 3 (LTE Band 48) are proximity cap sensor pads on this device. If the body is proximity to either one sensor, the sensor will be triggered independent by different sensor pads for different frequency bands.
4. The sensors used to detect the proximity of the user's body-worn condition and handheld condition at the back and left side of the device use a detection threshold distance. The data shown in the sections below shows the distance(s).
5. When the sensor is active, the device will reduced maximum output powers on the LTE B2/B4/B5/B66/B48 transmitter.
6. Sensor triggering capability is larger than the test separation used for SAR test (5mm for body exposure conditions, 0mm for extremity exposure conditions)



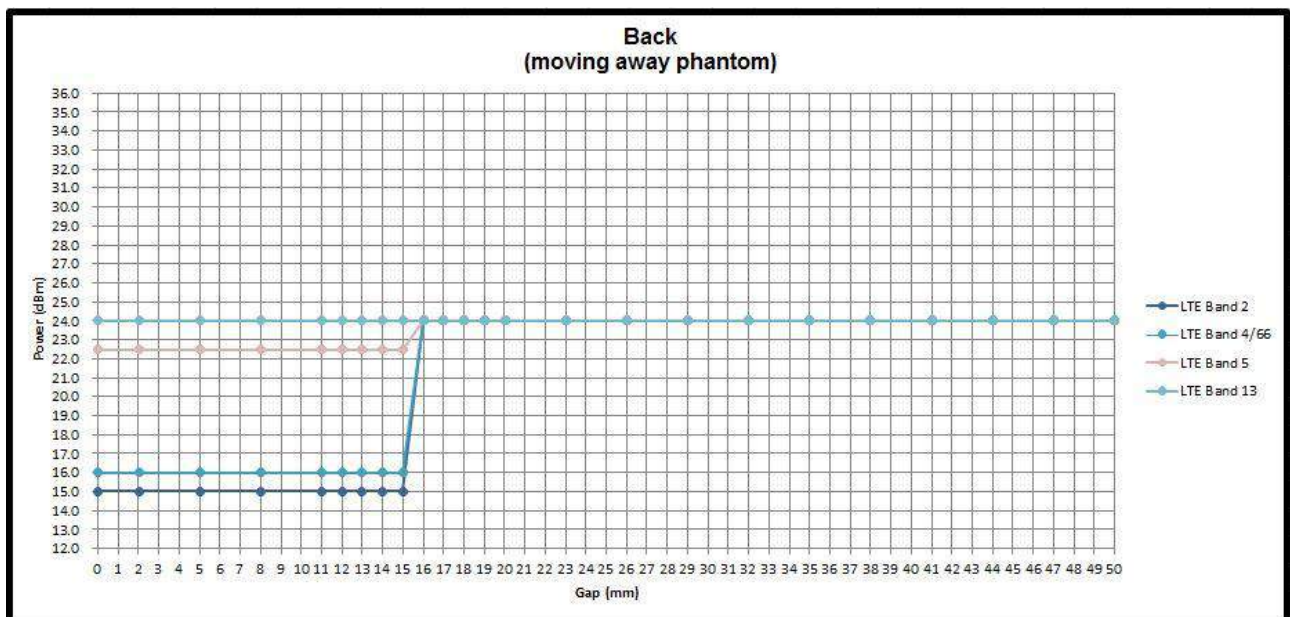
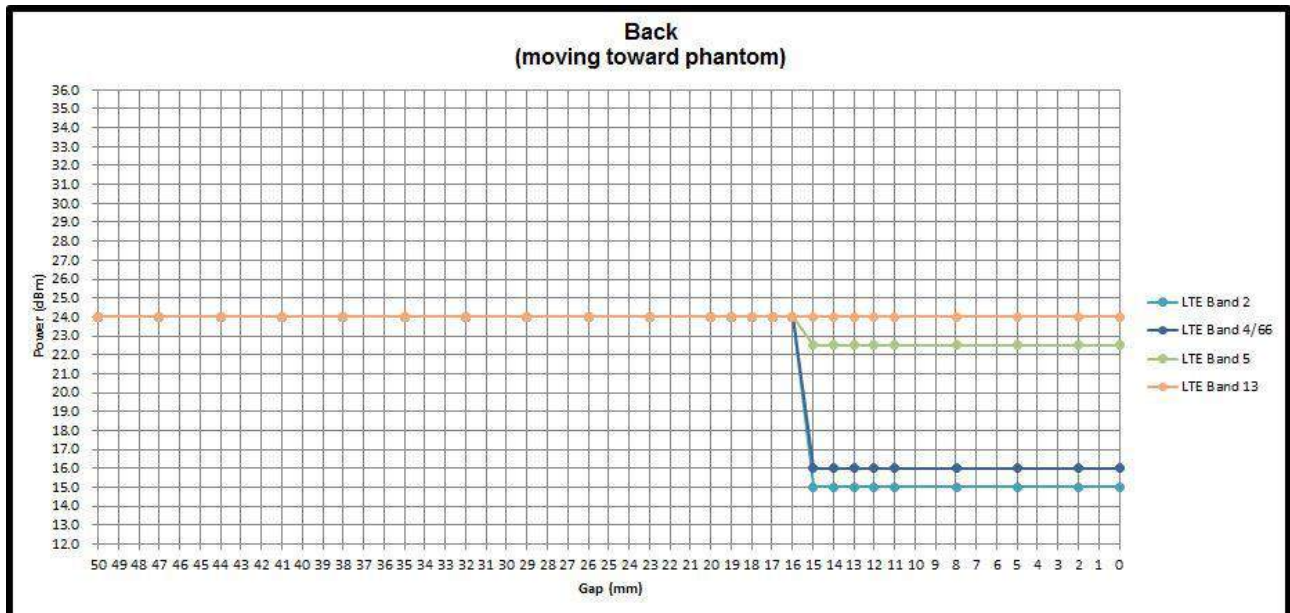


| Proximity Sensor Trigger Distance (mm) |                          |                             |
|----------------------------------------|--------------------------|-----------------------------|
| Body Worn                              | Back Surface             |                             |
| LTE Band 2/4/5/13/66                   | moved toward the phantom | moved back from the phantom |
| Trigger distance                       | 15                       | 15                          |

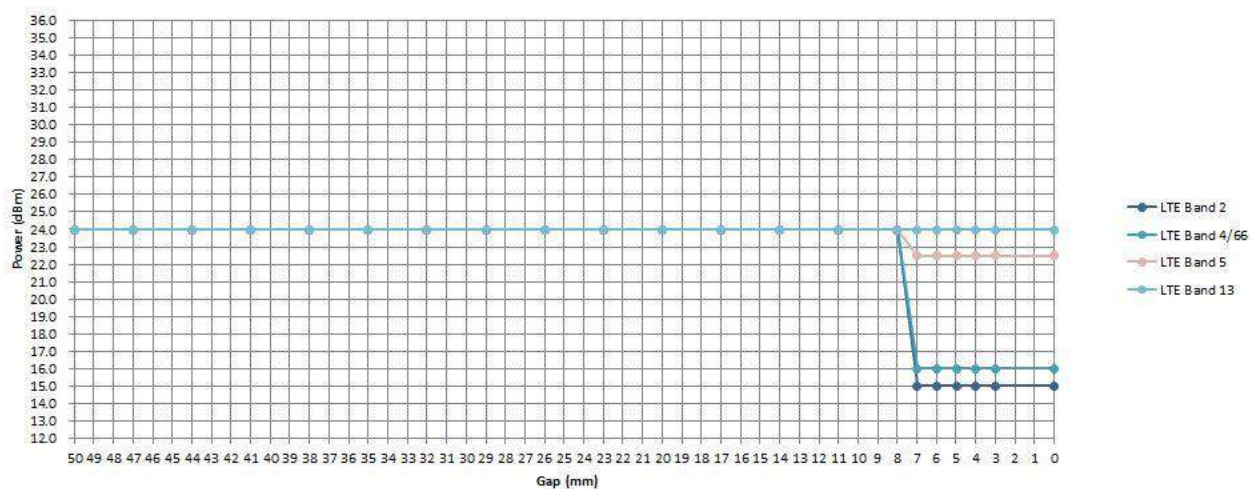
| Proximity Sensor Trigger Distance (mm) |                          |                             |
|----------------------------------------|--------------------------|-----------------------------|
| Product Specific                       | Left Side ( Front view)  |                             |
| LTE Band 2/4/5/13/66                   | moved toward the phantom | moved back from the phantom |
| Trigger distance                       | 11                       | 11                          |

| Proximity Sensor Trigger Distance (mm) |                          |                             |
|----------------------------------------|--------------------------|-----------------------------|
| Body Worn                              | Back Surface             |                             |
| LTE Band 48                            | moved toward the phantom | moved back from the phantom |
| Trigger distance                       | 10                       | 10                          |

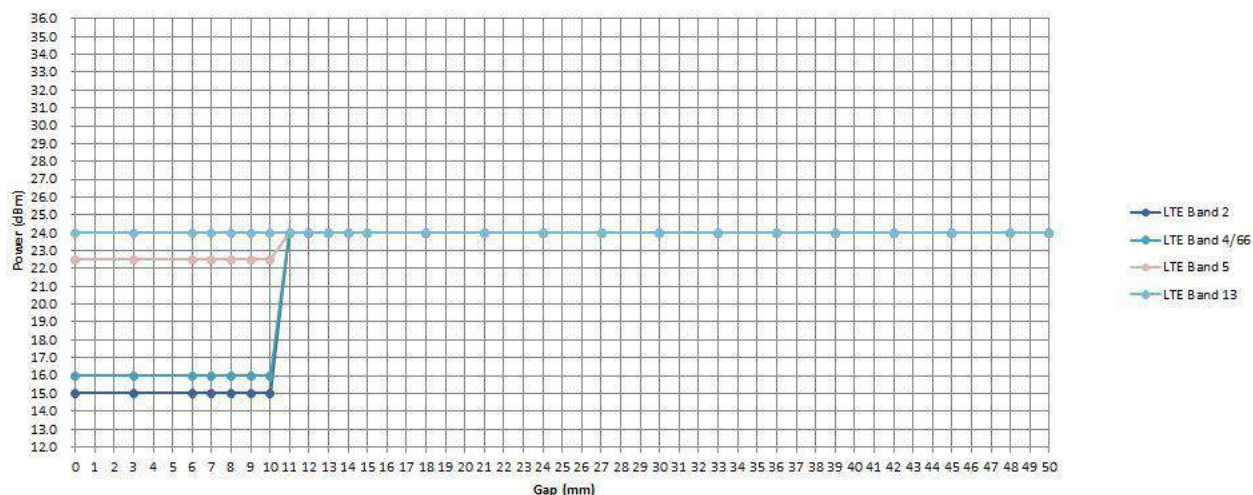
| Proximity Sensor Trigger Distance (mm) |                          |                             |
|----------------------------------------|--------------------------|-----------------------------|
| Product Specific                       | Left Side ( Front view)  |                             |
| LTE Band 48                            | moved toward the phantom | moved back from the phantom |
| Trigger distance                       | 3                        | 3                           |

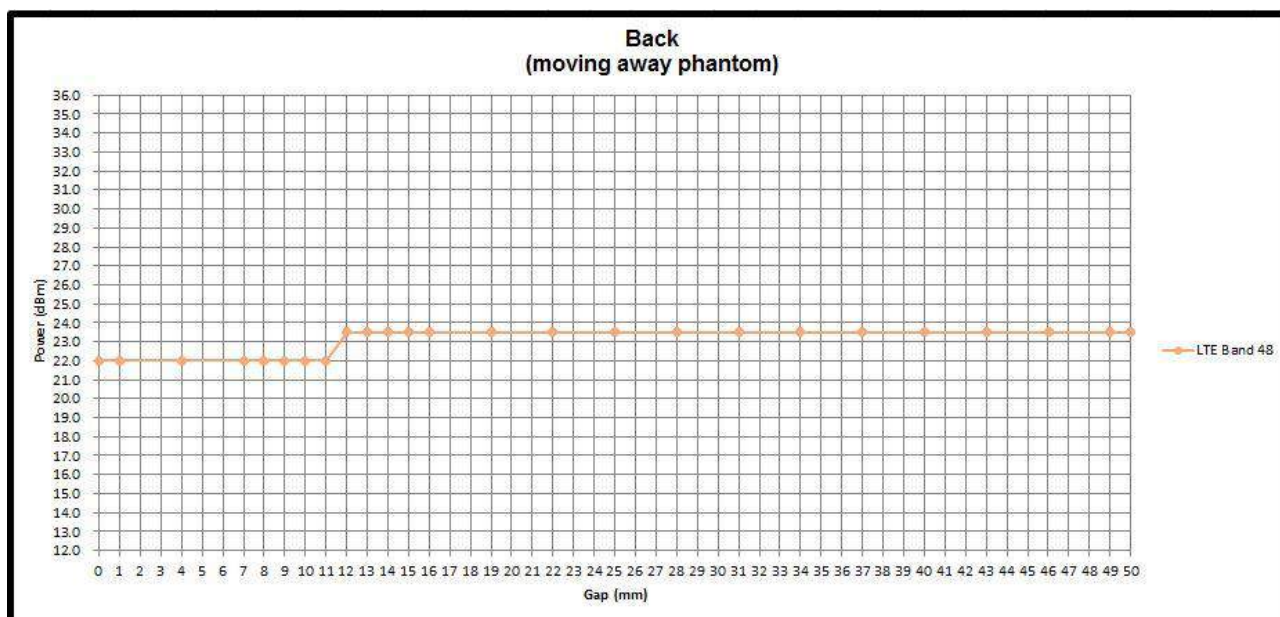
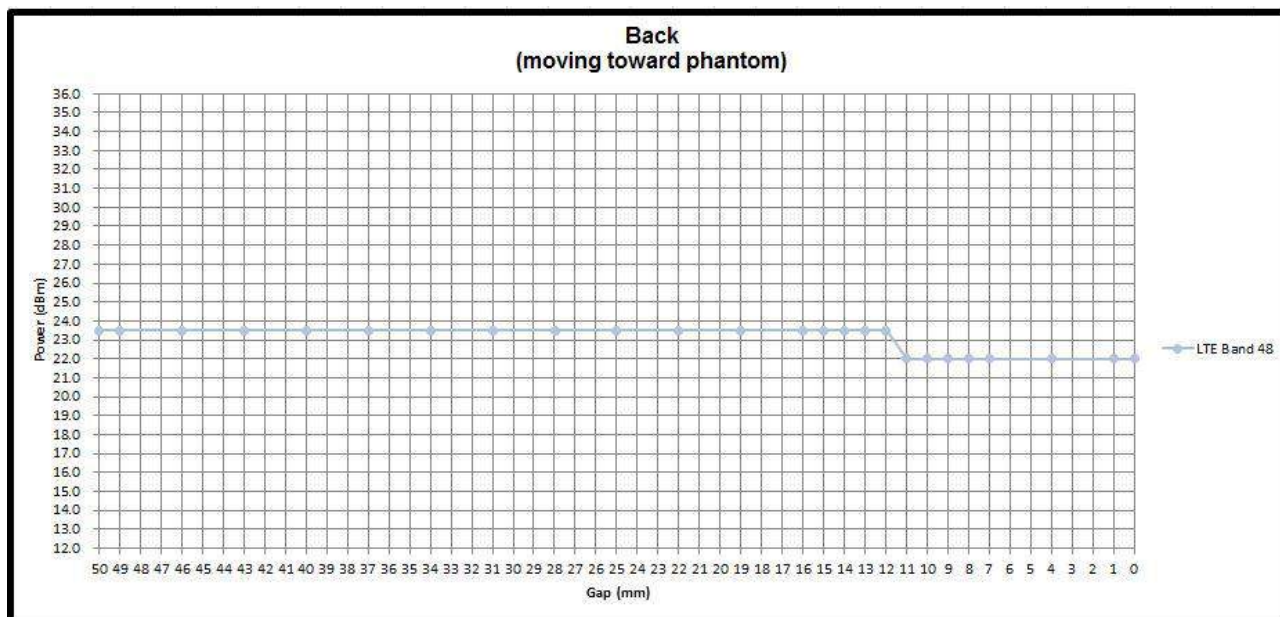
**<Sensor triggers distance V.S Measure power for LTE B2/B4/B5/B13/B66>**


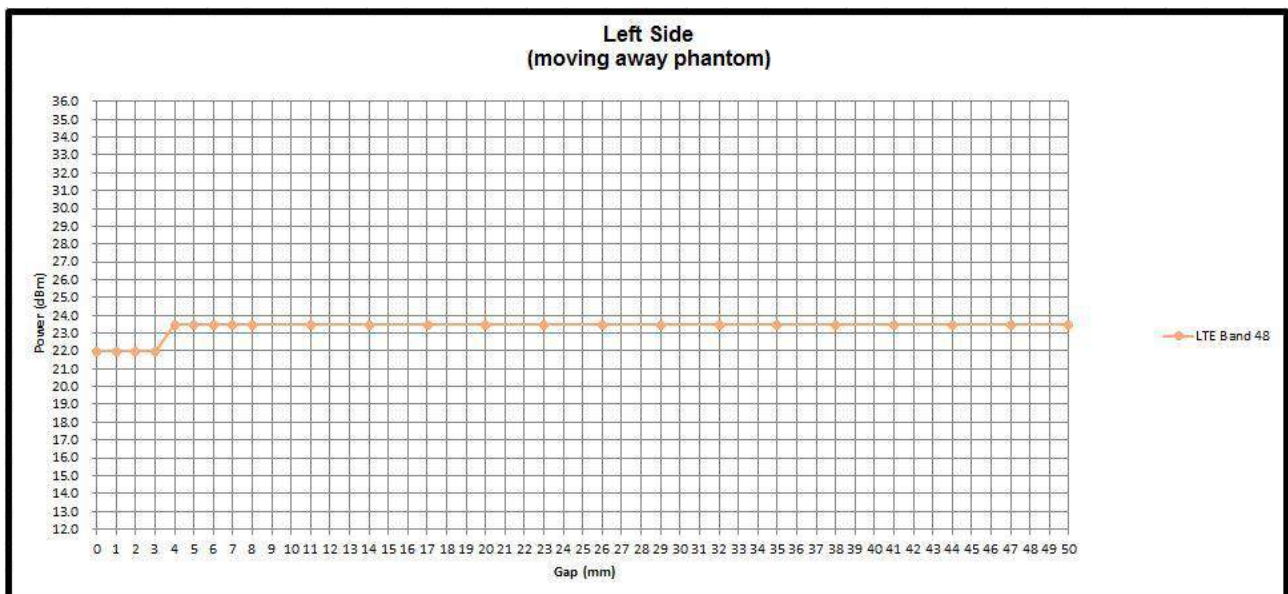
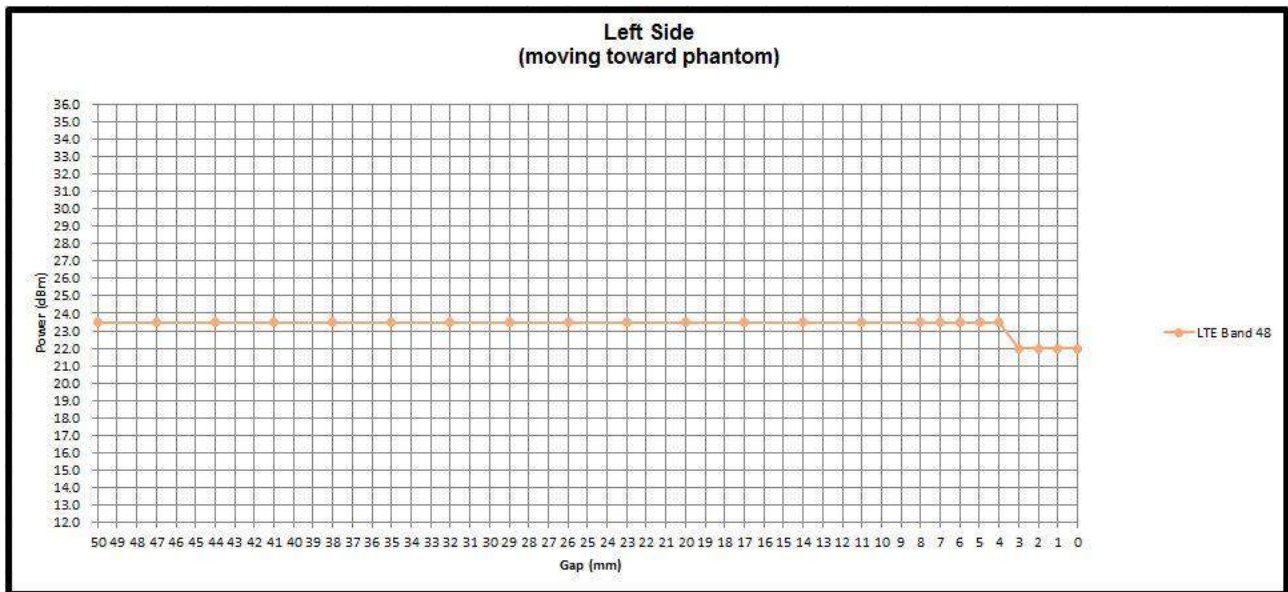
**Left Side  
(moving toward phantom)**



**Left Side  
(moving away phantom)**



**<Sensor triggers distance V.S Measure power for LTE B48>**






## 4. RF Exposure Limits

### 4.1 Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

### 4.2 Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

**Limits for Occupational/Controlled Exposure (W/kg)**

| Whole-Body | Partial-Body | Hands, Wrists, Feet and Ankles |
|------------|--------------|--------------------------------|
| 0.4        | 8.0          | 20.0                           |

**Limits for General Population/Uncontrolled Exposure (W/kg)**

| Whole-Body | Partial-Body | Hands, Wrists, Feet and Ankles |
|------------|--------------|--------------------------------|
| 0.08       | 1.6          | 4.0                            |

1. Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

## **5. Specific Absorption Rate (SAR)**

### **5.1 Introduction**

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

### **5.2 SAR Definition**

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$SAR = \frac{d}{dt} \left( \frac{dW}{dm} \right) = \frac{d}{dt} \left( \frac{dW}{\rho dv} \right)$$

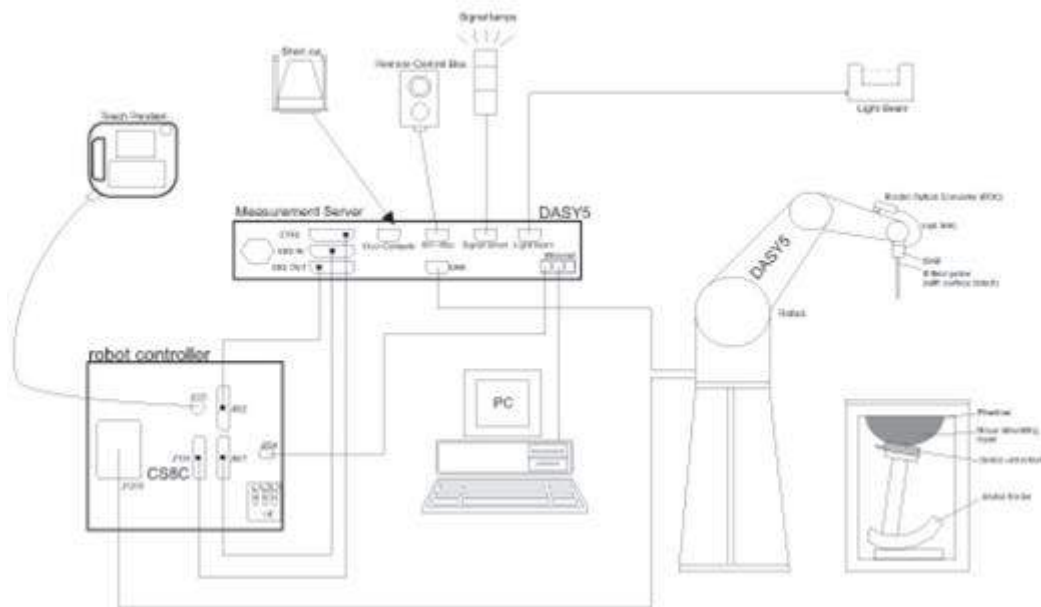
SAR is expressed in units of Watts per kilogram (W/kg)

$$SAR = \frac{\sigma |E|^2}{\rho}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

## 6. System Description and Setup

The DASY system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

## 6.1 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG). The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

### <ES3DV3 Probe>

|                      |                                                                                                                                                                                  |                                                                                    |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>Construction</b>  | Symmetric design with triangular core<br>Interleaved sensors<br>Built-in shielding against static charges<br>PEEK enclosure material (resistant to organic solvents, e.g., DGBE) |  |
| <b>Frequency</b>     | 10 MHz – 4 GHz;<br>Linearity: $\pm 0.2$ dB (30 MHz – 4 GHz)                                                                                                                      |                                                                                    |
| <b>Directivity</b>   | $\pm 0.2$ dB in TSL (rotation around probe axis)<br>$\pm 0.3$ dB in TSL (rotation normal to probe axis)                                                                          |                                                                                    |
| <b>Dynamic Range</b> | 5 $\mu$ W/g – >100 mW/g;<br>Linearity: $\pm 0.2$ dB                                                                                                                              |                                                                                    |
| <b>Dimensions</b>    | Overall length: 337 mm (tip: 20 mm)<br>Tip diameter: 3.9 mm (body: 12 mm)<br>Distance from probe tip to dipole centers: 3.0 mm                                                   |                                                                                    |

### <EX3DV4 Probe>

|                      |                                                                                                                                                           |                                                                                     |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Construction</b>  | Symmetric design with triangular core<br>Built-in shielding against static charges<br>PEEK enclosure material (resistant to organic solvents, e.g., DGBE) |  |
| <b>Frequency</b>     | 10 MHz – >6 GHz<br>Linearity: $\pm 0.2$ dB (30 MHz – 6 GHz)                                                                                               |                                                                                     |
| <b>Directivity</b>   | $\pm 0.3$ dB in TSL (rotation around probe axis)<br>$\pm 0.5$ dB in TSL (rotation normal to probe axis)                                                   |                                                                                     |
| <b>Dynamic Range</b> | 10 $\mu$ W/g – >100 mW/g<br>Linearity: $\pm 0.2$ dB (noise: typically <1 $\mu$ W/g)                                                                       |                                                                                     |
| <b>Dimensions</b>    | Overall length: 337 mm (tip: 20 mm)<br>Tip diameter: 2.5 mm (body: 12 mm)<br>Typical distance from probe tip to dipole centers: 1 mm                      |                                                                                     |

## 6.2 Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.



**Fig 5.1 Photo of DAE**

### 6.3 Phantom

#### <SAM Twin Phantom>

|                          |                                                         |                                                                                    |
|--------------------------|---------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>Shell Thickness</b>   | 2 ± 0.2 mm;<br>Center ear point: 6 ± 0.2 mm             |  |
| <b>Filling Volume</b>    | Approx. 25 liters                                       |                                                                                    |
| <b>Dimensions</b>        | Length: 1000 mm; Width: 500 mm; Height: adjustable feet |                                                                                    |
| <b>Measurement Areas</b> | Left Hand, Right Hand, Flat Phantom                     |                                                                                    |

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

#### <ELI Phantom>

|                        |                                                  |                                                                                     |
|------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Shell Thickness</b> | 2 ± 0.2 mm (sagging: <1%)                        |  |
| <b>Filling Volume</b>  | Approx. 30 liters                                |                                                                                     |
| <b>Dimensions</b>      | Major ellipse axis: 600 mm<br>Minor axis: 400 mm |                                                                                     |

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

## **6.4 Device Holder**

### **<Mounting Device for Hand-Held Transmitter>**

In combination with the Twin SAM V5.0/V5.0c or ELI phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). And upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140 mm.



Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

### **<Mounting Device for Laptops and other Body-Worn Transmitters>**

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.



Mounting Device for Laptops

## **7. Measurement Procedures**

The measurement procedures are as follows:

### **<Conducted power measurement>**

- (a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
- (b) Read the WWAN RF power level from the base station simulator.
- (c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
- (d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

### **<SAR measurement>**

- (a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
- (b) Place the EUT in the positions as Appendix D demonstrates.
- (c) Set scan area, grid size and other setting on the DASY software.
- (d) Measure SAR results for the highest power channel on each testing position.
- (e) Find out the largest SAR result on these testing positions of each band
- (f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- (a) Power reference measurement
- (b) Area scan
- (c) Zoom scan
- (d) Power drift measurement

### **7.1 Spatial Peak SAR Evaluation**

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

- (a) Extraction of the measured data (grid and values) from the Zoom Scan
- (b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- (c) Generation of a high-resolution mesh within the measured volume
- (d) Interpolation of all measured values from the measurement grid to the high-resolution grid
- (e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- (f) Calculation of the averaged SAR within masses of 1g and 10g

## **7.2 Power Reference Measurement**

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

## **7.3 Area Scan**

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

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

## 7.4 Zoom Scan

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

Zoom scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

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

## 7.5 Volume Scan Procedures

The volume scan is used to assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

## 7.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASy measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.



## 8. Test Equipment List

| Manufacturer  | Name of Equipment               | Type/Model      | Serial Number | Calibration   |               |
|---------------|---------------------------------|-----------------|---------------|---------------|---------------|
|               |                                 |                 |               | Last Cal.     | Due Date      |
| SPEAG         | 750MHz System Validation Kit    | D750V3          | 1107          | Feb. 27, 2018 | Feb. 26, 2019 |
| SPEAG         | 835MHz System Validation Kit    | D835V2          | 4d167         | Feb. 27, 2018 | Feb. 26, 2019 |
| SPEAG         | 1750MHz System Validation Kit   | D1750V2         | 1112          | Feb. 28, 2018 | Feb. 27, 2019 |
| SPEAG         | 1900MHz System Validation Kit   | D1900V2         | 5d041         | Sep. 11, 2018 | Sep. 10, 2019 |
| SPEAG         | 2450MHz System Validation Kit   | D2450V2         | 929           | Mar. 01, 2018 | Feb. 28, 2019 |
| SPEAG         | 2600MHz System Validation Kit   | D2600V2         | 1078          | Mar. 01, 2018 | Feb. 28, 2019 |
| SPEAG         | 3700MHz System Validation Kit   | D3700V2         | 1006          | Mar. 02, 2018 | Mar. 01, 2019 |
| SPEAG         | 5GHz System Validation Kit      | D5GHzV2         | 1006          | Sep. 27, 2018 | Sep. 26, 2019 |
| SPEAG         | Data Acquisition Electronics    | DAE3            | 577           | Sep. 19, 2018 | Sep. 18, 2019 |
| SPEAG         | Data Acquisition Electronics    | DAE4            | 854           | Jun. 14, 2018 | Jun. 13, 2019 |
| SPEAG         | Data Acquisition Electronics    | DAE4            | 917           | Dec. 14, 2017 | Dec. 13, 2018 |
| SPEAG         | Data Acquisition Electronics    | DAE4            | 1326          | Sep. 18, 2018 | Sep. 17, 2019 |
| SPEAG         | Data Acquisition Electronics    | DAE4            | 1399          | Nov. 16, 2017 | Nov. 15, 2018 |
| SPEAG         | Dosimetric E-Field Probe        | ES3DV3          | 3270          | Sep. 24, 2018 | Sep. 23, 2019 |
| SPEAG         | Dosimetric E-Field Probe        | EX3DV4          | 7306          | Jul. 26, 2018 | Jul. 25, 2019 |
| SPEAG         | Dosimetric E-Field Probe        | EX3DV4          | 7324          | Jul. 16, 2018 | Jul. 15, 2019 |
| SPEAG         | Dosimetric E-Field Probe        | EX3DV4          | 7346          | Feb. 28, 2018 | Feb. 27, 2019 |
| SPEAG         | Dosimetric E-Field Probe        | EX3DV4          | 3642          | Apr. 27, 2018 | Apr. 26, 2019 |
| SPEAG         | Dosimetric E-Field Probe        | EX3DV4          | 3925          | May. 31, 2018 | May. 30, 2019 |
| SPEAG         | Dosimetric E-Field Probe        | EX3DV4          | 3931          | Sep. 27, 2018 | Sep. 26, 2019 |
| SPEAG         | Dosimetric E-Field Probe        | EX3DV4          | 7515          | Oct. 03, 2018 | Oct. 02, 2019 |
| WonDer        | Thermometer                     | WD-5016         | TM131-1       | Mar. 16, 2018 | Mar. 15, 2019 |
| WonDer        | Thermometer                     | WD-5016         | TM132-1       | Mar. 16, 2018 | Mar. 15, 2019 |
| RCPTWN        | Thermometer                     | HTC-1           | TM685-2       | Mar. 16, 2018 | Mar. 15, 2019 |
| RCPTWN        | Thermometer                     | HTC-1           | TM281-2       | Mar. 16, 2018 | Mar. 15, 2019 |
| RCPTWN        | Thermometer                     | HTC-1           | TM560-2       | Mar. 16, 2018 | Mar. 15, 2019 |
| Anritsu       | Radio Communication Analyzer    | MT8821C         | 6201341950    | Apr. 17, 2018 | Apr. 16, 2019 |
| Anritsu       | Radio Communication Analyzer    | MT8820C         | 6201381760    | May. 21, 2018 | May. 20, 2019 |
| Agilent       | Wireless Communication Test Set | E5515C          | MY50266977    | May. 21, 2018 | May. 20, 2019 |
| R&S           | BT Base Station                 | CBT             | 100815        | Feb. 05, 2018 | Feb. 04, 2019 |
| SPEAG         | Device Holder                   | N/A             | N/A           | N/A           | N/A           |
| R&S           | Signal Generator                | SMA100A         | 101091        | Jul. 09, 2018 | Jul. 08, 2019 |
| Agilent       | ENA Network Analyzer            | E5071C          | MY46316648    | Jan. 17, 2018 | Jan. 16, 2019 |
| SPEAG         | Dielectric Probe Kit            | DAK-3.5         | 1146          | Jul. 24, 2018 | Jul. 23, 2019 |
| LINE SEIKI    | Digital Thermometer             | DTM3000-spezial | 3169          | Sep. 11, 2018 | Sep. 10, 2019 |
| Anritsu       | Power Meter                     | ML2495A         | 1419002       | May. 18, 2018 | May. 17, 2019 |
| Anritsu       | Power Sensor                    | MA2411B         | 1339124       | May. 18, 2018 | May. 17, 2019 |
| Agilent       | Spectrum Analyzer               | E4408B          | MY44211028    | Aug. 28, 2018 | Aug. 27, 2019 |
| Mini-Circuits | Power Amplifier                 | ZVE-8G+         | 6382          | Aug. 09, 2018 | Aug. 08, 2019 |
| Mini-Circuits | Power Amplifier                 | ZHL-42W+        | 15542         | Aug. 09, 2018 | Aug. 08, 2019 |
| ATM           | Dual Directional Coupler        | C122H-10        | P610410z-02   | Note 1        |               |
| Woken         | Attenuator 1                    | WK0602-XX       | N/A           | Note 1        |               |
| PE            | Attenuator 2                    | PE7005-10       | N/A           | Note 1        |               |
| PE            | Attenuator 3                    | PE7005- 3       | N/A           | Note 1        |               |

**General Note:**

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.
2. Referring to KDB 865664 D01v01r04, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.

## 9. System Verification

### 9.1 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.2.



Fig 10.1 Photo of Liquid Height for Head SAR



Fig 10.2 Photo of Liquid Height for Body SAR

**9.2 Tissue Verification**

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

| Frequency (MHz)  | Water (%) | Sugar (%) | Cellulose (%) | Salt (%) | Preventol (%) | DGBE (%) | Conductivity ( $\sigma$ ) | Permittivity ( $\epsilon_r$ ) |
|------------------|-----------|-----------|---------------|----------|---------------|----------|---------------------------|-------------------------------|
| For Head         |           |           |               |          |               |          |                           |                               |
| 750              | 41.1      | 57.0      | 0.2           | 1.4      | 0.2           | 0        | 0.89                      | 41.9                          |
| 835              | 40.3      | 57.9      | 0.2           | 1.4      | 0.2           | 0        | 0.90                      | 41.5                          |
| 900              | 40.3      | 57.9      | 0.2           | 1.4      | 0.2           | 0        | 0.97                      | 41.5                          |
| 1800, 1900, 2000 | 55.2      | 0         | 0             | 0.3      | 0             | 44.5     | 1.40                      | 40.0                          |
| 2450             | 55.0      | 0         | 0             | 0        | 0             | 45.0     | 1.80                      | 39.2                          |
| 2600             | 54.8      | 0         | 0             | 0.1      | 0             | 45.1     | 1.96                      | 39.0                          |
| For Body         |           |           |               |          |               |          |                           |                               |
| 750              | 51.7      | 47.2      | 0             | 0.9      | 0.1           | 0        | 0.96                      | 55.5                          |
| 835              | 50.8      | 48.2      | 0             | 0.9      | 0.1           | 0        | 0.97                      | 55.2                          |
| 900              | 50.8      | 48.2      | 0             | 0.9      | 0.1           | 0        | 1.05                      | 55.0                          |
| 1800, 1900, 2000 | 70.2      | 0         | 0             | 0.4      | 0             | 29.4     | 1.52                      | 53.3                          |
| 2450             | 68.6      | 0         | 0             | 0        | 0             | 31.4     | 1.95                      | 52.7                          |
| 2600             | 68.1      | 0         | 0             | 0.1      | 0             | 31.8     | 2.16                      | 52.5                          |

**Simulating Liquid for 3.5GHz-5GHz, Manufactured by SPEAG**

| Ingredients        | (% by weight) |
|--------------------|---------------|
| Water              | 64~78%        |
| Mineral oil        | 11~18%        |
| Emulsifiers        | 9~15%         |
| Additives and Salt | 2~3%          |

**<Tissue Dielectric Parameter Check Results>**

| Frequency (MHz) | Tissue Type | Liquid Temp. (°C) | Conductivity ( $\sigma$ ) | Permittivity ( $\epsilon_r$ ) | Conductivity Target ( $\sigma$ ) | Permittivity Target ( $\epsilon_r$ ) | Delta ( $\sigma$ ) (%) | Delta ( $\epsilon_r$ ) (%) | Limit (%) | Date       |
|-----------------|-------------|-------------------|---------------------------|-------------------------------|----------------------------------|--------------------------------------|------------------------|----------------------------|-----------|------------|
| 750             | HSL         | 22.5              | 0.895                     | 43.349                        | 0.89                             | 41.90                                | 0.56                   | 3.46                       | ±5        | 2018/9/20  |
| 750             | HSL         | 22.3              | 0.895                     | 43.349                        | 0.89                             | 41.90                                | 0.56                   | 3.46                       | ±5        | 2018/10/18 |
| 750             | MSL         | 22.5              | 0.973                     | 53.678                        | 0.96                             | 55.50                                | 1.35                   | -3.28                      | ±5        | 2018/9/20  |
| 750             | MSL         | 22.5              | 0.969                     | 54.068                        | 0.96                             | 55.50                                | 0.94                   | -2.58                      | ±5        | 2018/10/15 |
| 835             | HSL         | 22.5              | 0.888                     | 42.242                        | 0.90                             | 41.50                                | -1.33                  | 1.79                       | ±5        | 2018/9/20  |
| 835             | HSL         | 22.3              | 0.870                     | 41.188                        | 0.90                             | 41.50                                | -3.33                  | -0.75                      | ±5        | 2018/10/18 |
| 835             | MSL         | 22.5              | 1.003                     | 53.566                        | 0.97                             | 55.20                                | 3.40                   | -2.96                      | ±5        | 2018/9/20  |
| 835             | MSL         | 22.5              | 0.998                     | 56.904                        | 0.97                             | 55.20                                | 2.89                   | 3.09                       | ±5        | 2018/10/15 |
| 835             | MSL         | 22.6              | 0.940                     | 55.206                        | 0.97                             | 55.20                                | -3.09                  | 0.01                       | ±5        | 2018/11/2  |
| 1750            | HSL         | 22.5              | 1.390                     | 40.959                        | 1.37                             | 40.10                                | 1.46                   | 2.14                       | ±5        | 2018/9/20  |
| 1750            | HSL         | 22.3              | 1.362                     | 38.748                        | 1.37                             | 40.10                                | -0.58                  | -3.37                      | ±5        | 2018/10/16 |
| 1750            | MSL         | 22.6              | 1.463                     | 55.350                        | 1.49                             | 53.40                                | -1.81                  | 3.65                       | ±5        | 2018/9/21  |
| 1750            | MSL         | 22.7              | 1.478                     | 55.240                        | 1.49                             | 53.40                                | -0.81                  | 3.45                       | ±5        | 2018/10/25 |
| 1750            | MSL         | 22.3              | 1.474                     | 55.128                        | 1.49                             | 53.40                                | -1.07                  | 3.24                       | ±5        | 2018/12/12 |
| 1750            | MSL         | 22.8              | 1.474                     | 55.128                        | 1.49                             | 53.40                                | -1.07                  | 3.24                       | ±5        | 2018/12/18 |
| 1900            | HSL         | 22.5              | 1.431                     | 39.593                        | 1.40                             | 40.00                                | 2.21                   | -1.02                      | ±5        | 2018/9/20  |
| 1900            | HSL         | 22.3              | 1.448                     | 38.266                        | 1.40                             | 40.00                                | 3.43                   | -4.34                      | ±5        | 2018/10/16 |
| 1900            | MSL         | 22.6              | 1.551                     | 51.650                        | 1.52                             | 53.30                                | 2.04                   | -3.10                      | ±5        | 2018/9/21  |
| 1900            | MSL         | 22.4              | 1.506                     | 54.622                        | 1.52                             | 53.30                                | -0.92                  | 2.48                       | ±5        | 2018/10/24 |
| 1900            | MSL         | 22.3              | 1.582                     | 54.608                        | 1.52                             | 53.30                                | 4.08                   | 2.45                       | ±5        | 2018/12/12 |
| 1900            | MSL         | 22.8              | 1.569                     | 54.718                        | 1.52                             | 53.30                                | 3.22                   | 2.66                       | ±5        | 2018/12/18 |
| 2450            | HSL         | 22.7              | 1.845                     | 40.185                        | 1.80                             | 39.20                                | 2.50                   | 2.51                       | ±5        | 2018/9/21  |
| 2450            | MSL         | 22.7              | 2.024                     | 53.493                        | 1.95                             | 52.70                                | 3.79                   | 1.50                       | ±5        | 2018/9/21  |
| 2600            | HSL         | 22.7              | 2.025                     | 39.601                        | 1.96                             | 39.00                                | 3.32                   | 1.54                       | ±5        | 2018/9/21  |
| 2600            | MSL         | 22.7              | 2.227                     | 53.004                        | 2.16                             | 52.50                                | 3.10                   | 0.96                       | ±5        | 2018/9/21  |
| 3700            | HSL         | 22.6              | 3.218                     | 38.674                        | 3.12                             | 37.68                                | 3.14                   | 2.64                       | ±5        | 2018/10/18 |
| 3700            | MSL         | 22.3              | 3.505                     | 49.490                        | 3.54                             | 51.03                                | -0.99                  | -3.02                      | ±5        | 2018/10/20 |
| 3700            | MSL         | 22.6              | 3.499                     | 49.480                        | 3.54                             | 51.03                                | -1.16                  | -3.04                      | ±5        | 2018/10/26 |
| 3700            | MSL         | 22.6              | 3.485                     | 49.280                        | 3.54                             | 51.03                                | -1.55                  | -3.43                      | ±5        | 2018/12/13 |
| 5250            | HSL         | 22.7              | 4.641                     | 37.021                        | 4.71                             | 35.95                                | -1.46                  | 2.98                       | ±5        | 2018/9/21  |
| 5250            | MSL         | 22.6              | 5.268                     | 47.866                        | 5.36                             | 48.95                                | -1.72                  | -2.21                      | ±5        | 2018/9/22  |
| 5600            | HSL         | 22.7              | 5.005                     | 36.464                        | 5.07                             | 35.50                                | -1.28                  | 2.72                       | ±5        | 2018/9/21  |
| 5600            | MSL         | 22.6              | 5.706                     | 47.329                        | 5.77                             | 48.50                                | -1.11                  | -2.41                      | ±5        | 2018/9/22  |
| 5750            | HSL         | 22.7              | 5.140                     | 36.313                        | 5.22                             | 35.35                                | -1.53                  | 2.72                       | ±5        | 2018/9/21  |
| 5750            | MSL         | 22.6              | 5.907                     | 47.097                        | 5.94                             | 48.28                                | -0.56                  | -2.45                      | ±5        | 2018/9/22  |

### 9.3 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

| Date       | Frequency (MHz) | Tissue Type | Input Power (mW) | Dipole S/N        | Probe S/N       | DAE S/N     | Measured 1g SAR (W/kg) | Targeted 1g SAR (W/kg) | Normalized 1g SAR (W/kg) | Deviation (%) |
|------------|-----------------|-------------|------------------|-------------------|-----------------|-------------|------------------------|------------------------|--------------------------|---------------|
| 2018/9/20  | 750             | HSL         | 250              | D750V3-1107       | EX3DV4 - SN7324 | DAE4 Sn854  | 2.08                   | 8.18                   | 8.32                     | 1.71          |
| 2018/10/18 | 750             | HSL         | 250              | D750V3-1107       | EX3DV4 - SN7306 | DAE3 Sn577  | 2.17                   | 8.18                   | 8.68                     | 6.11          |
| 2018/9/20  | 750             | MSL         | 250              | D750V3-1107       | EX3DV4 - SN7324 | DAE4 Sn854  | 2.05                   | 8.52                   | 8.2                      | -3.76         |
| 2018/10/15 | 750             | MSL         | 250              | D750V3-1107       | EX3DV4 - SN7306 | DAE3 Sn577  | 2.28                   | 8.76                   | 9.12                     | 4.11          |
| 2018/9/20  | 835             | HSL         | 250              | D835V2-4d167      | EX3DV4 - SN7324 | DAE4 Sn854  | 2.13                   | 9.26                   | 8.52                     | -7.99         |
| 2018/10/18 | 835             | HSL         | 250              | D835V2-4d167      | EX3DV4 - SN7306 | DAE3 Sn577  | 2.37                   | 9.26                   | 9.48                     | 2.38          |
| 2018/9/20  | 835             | MSL         | 250              | D835V2-4d167      | EX3DV4 - SN7324 | DAE4 Sn854  | 2.17                   | 9.62                   | 8.68                     | -9.77         |
| 2018/10/15 | 835             | MSL         | 250              | D835V2-4d167      | EX3DV4 - SN7306 | DAE3 Sn577  | 2.46                   | 9.62                   | 9.84                     | 2.29          |
| 2018/11/2  | 835             | MSL         | 250              | D835V2-4d167      | EX3DV4 - SN7346 | DAE4 Sn1399 | 2.44                   | 9.62                   | 9.76                     | 1.46          |
| 2018/9/20  | 1750            | HSL         | 250              | D1750V2-1112      | EX3DV4 - SN7306 | DAE4 Sn854  | 9.48                   | 37.90                  | 37.92                    | 0.05          |
| 2018/10/16 | 1750            | HSL         | 250              | D1750V2-1112      | EX3DV4 - SN7306 | DAE3 Sn577  | 9.25                   | 37.90                  | 37                       | -2.37         |
| 2018/9/21  | 1750            | MSL         | 250              | D1750V2-1112      | EX3DV4 - SN7346 | DAE4 Sn854  | 9.56                   | 38.10                  | 38.24                    | 0.37          |
| 2018/10/25 | 1750            | MSL         | 250              | D1750V2-1112      | EX3DV4 - SN3925 | DAE4 Sn1326 | 9.05                   | 38.10                  | 36.2                     | -4.99         |
| 2018/12/12 | 1750            | MSL         | 250              | D1750V2-1112      | EX3DV4 - SN7515 | DAE4 Sn854  | 9.79                   | 38.10                  | 39.16                    | 2.78          |
| 2018/12/18 | 1750            | MSL         | 250              | D1750V2-1112      | ES3DV3 - SN3270 | DAE4 Sn854  | 9.54                   | 38.10                  | 38.16                    | 0.16          |
| 2018/9/20  | 1900            | HSL         | 250              | D1900V2-5d041     | EX3DV4 - SN7306 | DAE4 Sn854  | 10.50                  | 40.20                  | 42                       | 4.48          |
| 2018/10/16 | 1900            | HSL         | 250              | D1900V2-5d041     | EX3DV4 - SN7306 | DAE3 Sn577  | 10.60                  | 40.20                  | 42.4                     | 5.47          |
| 2018/9/21  | 1900            | MSL         | 250              | D1900V2-5d041     | EX3DV4 - SN7346 | DAE4 Sn854  | 10.20                  | 40.20                  | 40.8                     | 1.49          |
| 2018/10/24 | 1900            | MSL         | 250              | D1900V2-5d041     | EX3DV4 - SN7346 | DAE4 Sn1399 | 10.20                  | 40.20                  | 40.8                     | 1.49          |
| 2018/12/12 | 1900            | MSL         | 250              | D1900V2-5d041     | EX3DV4 - SN7515 | DAE4 Sn854  | 10.50                  | 40.20                  | 42                       | 4.48          |
| 2018/12/18 | 1900            | MSL         | 250              | D1900V2-5d041     | ES3DV3 - SN3270 | DAE4 Sn854  | 10.60                  | 40.20                  | 42.4                     | 5.47          |
| 2018/9/21  | 2450            | HSL         | 250              | D2450V2-929       | EX3DV4 - SN7324 | DAE4 Sn854  | 14.20                  | 52.20                  | 56.8                     | 8.81          |
| 2018/9/21  | 2450            | MSL         | 250              | D2450V2-929       | EX3DV4 - SN7324 | DAE4 Sn854  | 13.40                  | 52.30                  | 53.6                     | 2.49          |
| 2018/9/21  | 2600            | HSL         | 250              | D2600V2-1078      | EX3DV4 - SN7306 | DAE4 Sn917  | 14.60                  | 56.50                  | 58.4                     | 3.36          |
| 2018/9/21  | 2600            | MSL         | 250              | D2600V2-1078      | EX3DV4 - SN7324 | DAE4 Sn854  | 12.80                  | 54.10                  | 51.2                     | -5.36         |
| 2018/10/18 | 3700            | HSL         | 100              | D3700V2-1006      | EX3DV4 - SN3642 | DAE3 Sn577  | 6.58                   | 69.50                  | 65.8                     | -5.32         |
| 2018/10/20 | 3700            | MSL         | 100              | D3700V2-1006      | EX3DV4 - SN3642 | DAE3 Sn577  | 6.00                   | 64.70                  | 60                       | -7.26         |
| 2018/10/26 | 3700            | MSL         | 100              | D3700V2-1006      | EX3DV4 - SN3642 | DAE4 Sn1326 | 6.03                   | 64.70                  | 60.3                     | -6.80         |
| 2018/12/13 | 3700            | MSL         | 100              | D3700V2-1006      | EX3DV4 - SN3931 | DAE4 Sn854  | 6.20                   | 64.70                  | 62                       | -4.17         |
| 2018/9/21  | 5250            | HSL         | 100              | D5GHzV2-1006-5250 | EX3DV4 - SN7306 | DAE4 Sn917  | 8.29                   | 78.30                  | 82.9                     | 5.87          |
| 2018/9/22  | 5250            | MSL         | 100              | D5GHzV2-1006-5250 | EX3DV4 - SN7306 | DAE4 Sn917  | 7.36                   | 77.00                  | 73.6                     | -4.42         |
| 2018/9/21  | 5600            | HSL         | 100              | D5GHzV2-1006-5600 | EX3DV4 - SN7324 | DAE4 Sn854  | 8.64                   | 85.00                  | 86.4                     | 1.65          |
| 2018/9/22  | 5600            | MSL         | 100              | D5GHzV2-1006-5600 | EX3DV4 - SN7306 | DAE4 Sn917  | 8.02                   | 80.10                  | 80.2                     | 0.12          |
| 2018/9/21  | 5750            | HSL         | 100              | D5GHzV2-1006-5750 | EX3DV4 - SN7324 | DAE4 Sn854  | 8.00                   | 78.50                  | 80                       | 1.91          |
| 2018/9/22  | 5750            | MSL         | 100              | D5GHzV2-1006-5750 | EX3DV4 - SN7306 | DAE4 Sn917  | 7.42                   | 75.10                  | 74.2                     | -1.20         |

| Date       | Frequency (MHz) | Tissue Type | Input Power (mW) | Dipole S/N        | Probe S/N       | DAE S/N     | Measured 10g SAR (W/kg) | Targeted 10g SAR (W/kg) | Normalized 10g SAR (W/kg) | Deviation (%) |
|------------|-----------------|-------------|------------------|-------------------|-----------------|-------------|-------------------------|-------------------------|---------------------------|---------------|
| 2018/9/20  | 750             | HSL         | 250              | D750V3-1107       | EX3DV4 - SN7324 | DAE4 Sn854  | 1.38                    | 5.35                    | 5.52                      | 3.18          |
| 2018/10/18 | 750             | HSL         | 250              | D750V3-1107       | EX3DV4 - SN7306 | DAE3 Sn577  | 1.45                    | 5.35                    | 5.8                       | 8.41          |
| 2018/9/20  | 750             | MSL         | 250              | D750V3-1107       | EX3DV4 - SN7324 | DAE4 Sn854  | 1.35                    | 5.60                    | 5.4                       | -3.57         |
| 2018/10/15 | 750             | MSL         | 250              | D750V3-1107       | EX3DV4 - SN7306 | DAE3 Sn577  | 1.53                    | 5.97                    | 6.12                      | 2.51          |
| 2018/9/20  | 835             | HSL         | 250              | D835V2-4d167      | EX3DV4 - SN7324 | DAE4 Sn854  | 1.41                    | 6.03                    | 5.64                      | -6.47         |
| 2018/10/18 | 835             | HSL         | 250              | D835V2-4d167      | EX3DV4 - SN7306 | DAE3 Sn577  | 1.56                    | 6.03                    | 6.24                      | 3.48          |
| 2018/9/20  | 835             | MSL         | 250              | D835V2-4d167      | EX3DV4 - SN7324 | DAE4 Sn854  | 1.43                    | 6.27                    | 5.72                      | -8.77         |
| 2018/10/15 | 835             | MSL         | 250              | D835V2-4d167      | EX3DV4 - SN7306 | DAE3 Sn577  | 1.63                    | 6.27                    | 6.52                      | 3.99          |
| 2018/11/2  | 835             | MSL         | 250              | D835V2-4d167      | EX3DV4 - SN7346 | DAE4 Sn1399 | 1.64                    | 6.27                    | 6.56                      | 4.63          |
| 2018/9/20  | 1750            | HSL         | 250              | D1750V2-1112      | EX3DV4 - SN7306 | DAE4 Sn854  | 5.08                    | 20.00                   | 20.32                     | 1.60          |
| 2018/10/16 | 1750            | HSL         | 250              | D1750V2-1112      | EX3DV4 - SN7306 | DAE3 Sn577  | 4.96                    | 20.00                   | 19.84                     | -0.80         |
| 2018/9/21  | 1750            | MSL         | 250              | D1750V2-1112      | EX3DV4 - SN7346 | DAE4 Sn854  | 5.17                    | 20.20                   | 20.68                     | 2.38          |
| 2018/10/25 | 1750            | MSL         | 250              | D1750V2-1112      | EX3DV4 - SN3925 | DAE4 Sn1326 | 4.87                    | 20.20                   | 19.48                     | -3.56         |
| 2018/12/12 | 1750            | MSL         | 250              | D1750V2-1112      | EX3DV4 - SN7515 | DAE4 Sn854  | 5.32                    | 20.20                   | 21.28                     | 5.35          |
| 2018/12/18 | 1750            | MSL         | 250              | D1750V2-1112      | ES3DV3 - SN3270 | DAE4 Sn854  | 5.17                    | 20.20                   | 20.68                     | 2.38          |
| 2018/9/20  | 1900            | HSL         | 250              | D1900V2-5d041     | EX3DV4 - SN7306 | DAE4 Sn854  | 5.40                    | 21.20                   | 21.6                      | 1.89          |
| 2018/10/16 | 1900            | HSL         | 250              | D1900V2-5d041     | EX3DV4 - SN7306 | DAE3 Sn577  | 5.44                    | 21.20                   | 21.76                     | 2.64          |
| 2018/9/21  | 1900            | MSL         | 250              | D1900V2-5d041     | EX3DV4 - SN7346 | DAE4 Sn854  | 5.35                    | 21.50                   | 21.4                      | -0.47         |
| 2018/10/24 | 1900            | MSL         | 250              | D1900V2-5d041     | EX3DV4 - SN7346 | DAE4 Sn1399 | 5.29                    | 21.50                   | 21.16                     | -1.58         |
| 2018/12/12 | 1900            | MSL         | 250              | D1900V2-5d041     | EX3DV4 - SN7515 | DAE4 Sn854  | 5.52                    | 21.50                   | 22.08                     | 2.70          |
| 2018/12/18 | 1900            | MSL         | 250              | D1900V2-5d041     | ES3DV3 - SN3270 | DAE4 Sn854  | 5.55                    | 21.50                   | 22.2                      | 3.26          |
| 2018/9/21  | 2450            | HSL         | 250              | D2450V2-929       | EX3DV4 - SN7324 | DAE4 Sn854  | 6.56                    | 24.20                   | 26.24                     | 8.43          |
| 2018/9/21  | 2450            | MSL         | 250              | D2450V2-929       | EX3DV4 - SN7324 | DAE4 Sn854  | 6.16                    | 24.40                   | 24.64                     | 0.98          |
| 2018/9/21  | 2600            | HSL         | 250              | D2600V2-1078      | EX3DV4 - SN7306 | DAE4 Sn917  | 6.56                    | 25.30                   | 26.24                     | 3.72          |
| 2018/9/21  | 2600            | MSL         | 250              | D2600V2-1078      | EX3DV4 - SN7324 | DAE4 Sn854  | 5.61                    | 24.10                   | 22.44                     | -6.89         |
| 2018/10/18 | 3700            | HSL         | 100              | D3700V2-1006      | EX3DV4 - SN3642 | DAE3 Sn577  | 2.37                    | 25.60                   | 23.7                      | -7.42         |
| 2018/10/20 | 3700            | MSL         | 100              | D3700V2-1006      | EX3DV4 - SN3642 | DAE3 Sn577  | 2.14                    | 23.30                   | 21.4                      | -8.15         |
| 2018/10/26 | 3700            | MSL         | 100              | D3700V2-1006      | EX3DV4 - SN3642 | DAE4 Sn1326 | 2.16                    | 23.30                   | 21.6                      | -7.30         |
| 2018/12/13 | 3700            | MSL         | 100              | D3700V2-1006      | EX3DV4 - SN3931 | DAE4 Sn854  | 2.17                    | 23.30                   | 21.7                      | -6.87         |
| 2018/9/21  | 5250            | HSL         | 100              | D5GHzV2-1006-5250 | EX3DV4 - SN7306 | DAE4 Sn917  | 2.34                    | 22.50                   | 23.4                      | 4.00          |
| 2018/9/22  | 5250            | MSL         | 100              | D5GHzV2-1006-5250 | EX3DV4 - SN7306 | DAE4 Sn917  | 2.06                    | 21.30                   | 20.6                      | -3.29         |
| 2018/9/22  | 5600            | MSL         | 100              | D5GHzV2-1006-5600 | EX3DV4 - SN7306 | DAE4 Sn917  | 2.33                    | 24.30                   | 23.3                      | -4.12         |
| 2018/9/21  | 5750            | HSL         | 100              | D5GHzV2-1006-5750 | EX3DV4 - SN7324 | DAE4 Sn854  | 2.22                    | 22.40                   | 22.2                      | -0.89         |
| 2018/9/22  | 5750            | MSL         | 100              | D5GHzV2-1006-5750 | EX3DV4 - SN7306 | DAE4 Sn917  | 2.19                    | 22.30                   | 21.9                      | -1.79         |

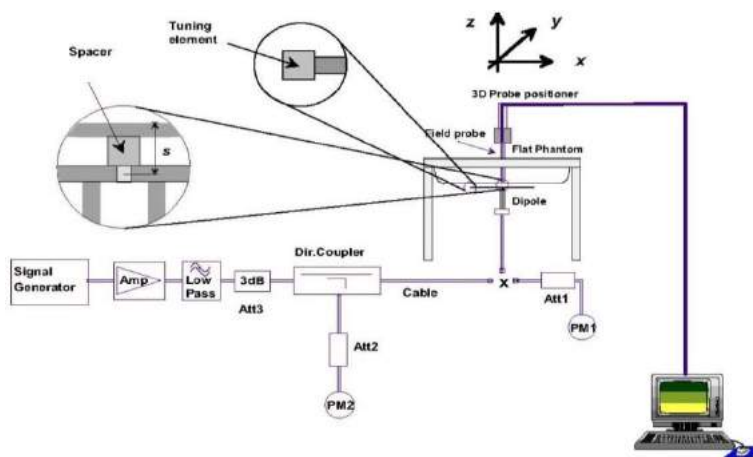

**Fig 8.3.1 System Performance Check Setup**

**Fig 8.3.2 Setup Photo**

## **10. RF Exposure Positions**

### **10.1 Ear and handset reference point**

Figure 9.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled "M," the left ear reference point (ERP) is marked "LE," and the right ERP is marked "RE." Each ERP is 15 mm along the B-M (back-mouth) line behind the entrance-to-ear-canal (EEC) point, as shown in Figure 9.1.2 The Reference Plane is defined as passing through the two ear reference points and point M. The line N-F (neck-front), also called the reference pivoting line, is normal to the Reference Plane and perpendicular to both a line passing through RE and LE and the B-M line (see Figure 9.1.3). Both N-F and B-M lines should be marked on the exterior of the phantom shell to facilitate handset positioning. Posterior to the N-F line the ear shape is a flat surface with 6 mm thickness at each ERP, and forward of the N-F line the ear is truncated, as illustrated in Figure 9.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

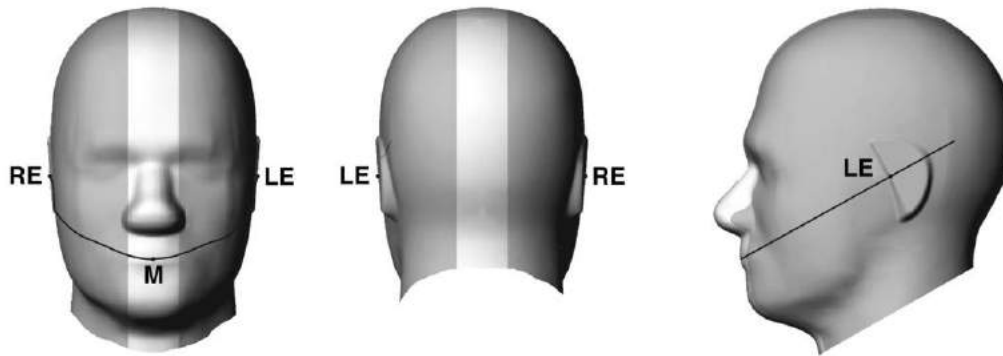


**Fig 9.1.1 Front, back, and side views of SAM twin phantom**

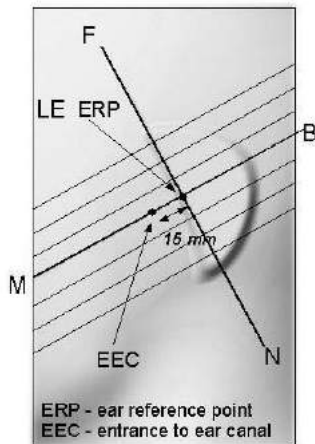


**Fig 9.1.2 Close-up side view of phantom showing the ear region.**

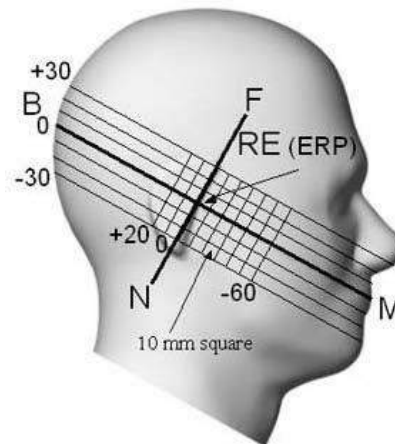


**Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations**

## 10.2 Definition of the cheek position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset—the midpoint of the width  $w_t$  of the handset at the level of the acoustic output (point A in Figure 9.2.1 and Figure 9.2.2), and the midpoint of the width  $w_b$  of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 9.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 9.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
3. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 9.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
4. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP.
5. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
6. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
7. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 9.2.3. The actual rotation angles should be documented in the test report.

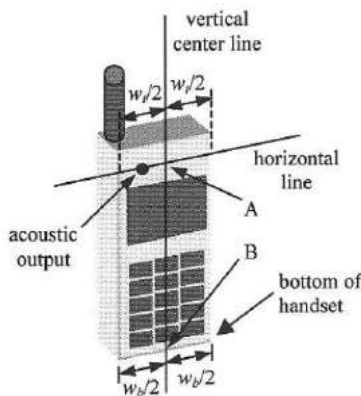


**Fig 9.2.1 Handset vertical and horizontal reference lines—“fixed case”**

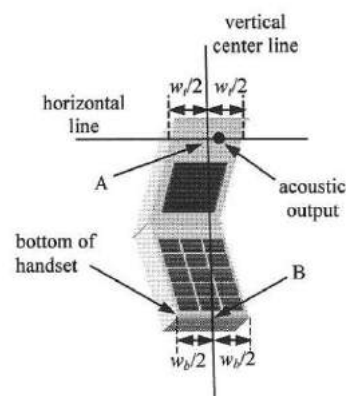


**Fig 9.2.2 Handset vertical and horizontal reference lines—“clam-shell case”**

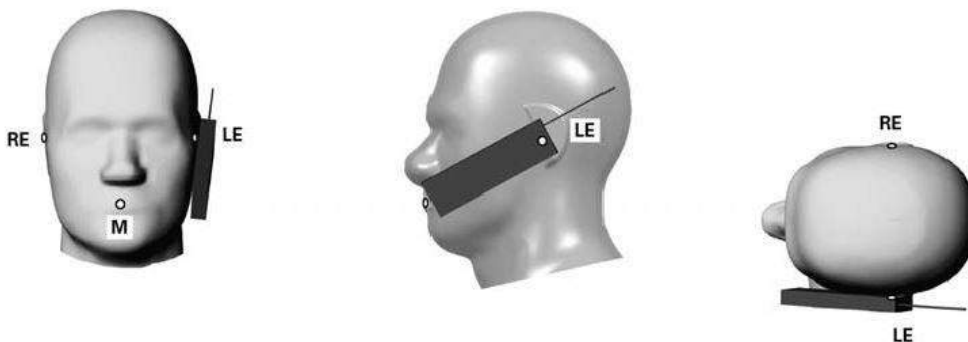


**Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.**

### **10.3 Definition of the tilt position**

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. While maintaining the orientation of the handset, move the handset away from the pinna along the line passing through RE and LE far enough to allow a rotation of the handset away from the cheek by 15°.
3. Rotate the handset around the horizontal line by 15°.
4. While maintaining the orientation of the handset, move the handset towards the phantom on the line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact point is on the pinna. See Figure 9.3.1. If contact occurs at any location other than the pinna, e.g., the antenna at the back of the phantom head, the angle of the handset should be reduced. In this case, the tilt position is obtained if any point on the handset is in contact with the pinna and a second point

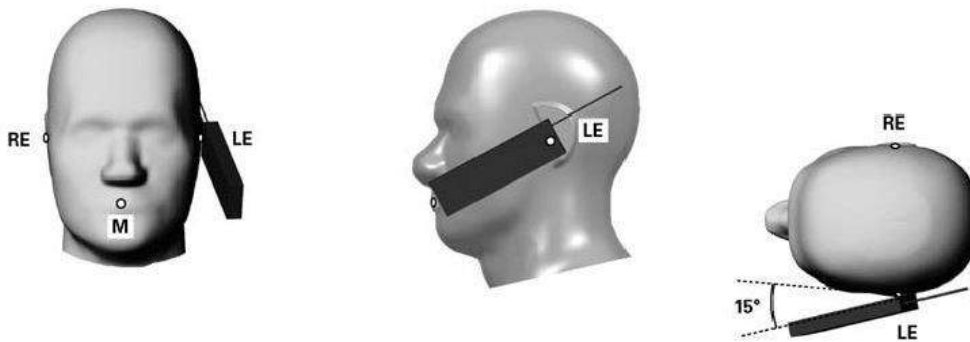


**Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.**

### **10.4 Body Worn Accessory**

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 9.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is  $> 1.2 \text{ W/kg}$ , the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a handset attached to the handset.

Accessories for body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are test with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

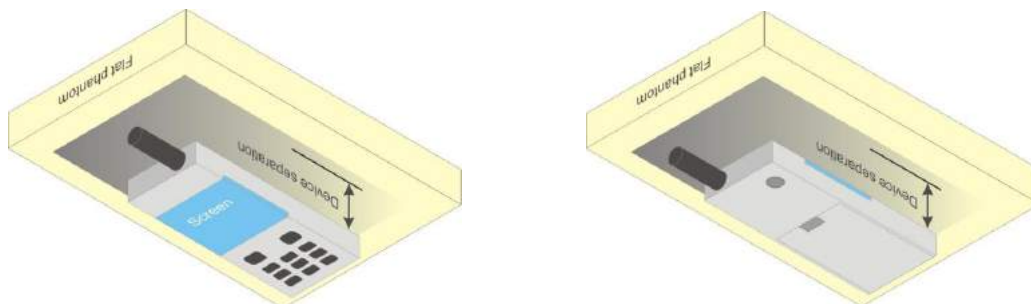


**Fig 9.4 Body Worn Position**



### **10.5 Product Specific Exposure**

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, According to KDB648474 D04v01r03, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.
2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at  $\leq 25$  mm from that surface or edge, in direct contact with a flat phantom, for 10-g Product Specific SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions.<sup>6</sup> The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g Product Specific SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

### **10.6 Wireless Router**

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets ( $L \times W \geq 9 \text{ cm} \times 5 \text{ cm}$ ) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

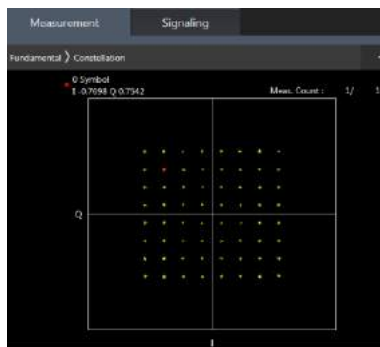
When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 publication procedures. The "Portable Hotspot" feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

## **11. Conducted RF Output Power (Unit: dBm)**

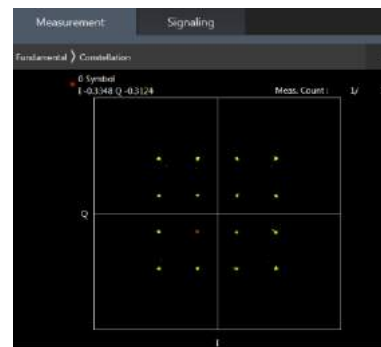
### **<LTE Conducted Power>**

#### **General Note:**

1. Anritsu MT8821C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are  $\leq 0.8$  W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is  $> 1.45$  W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is  $>$  not  $\frac{1}{2}$  dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is  $>$  not  $\frac{1}{2}$  dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B5the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE band 4 SAR test was covered by Band 66; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
  - a. the maximum output power, including tolerance, for the smaller band is  $\leq$  the larger band to qualify for the SAR test exclusion
  - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



**64QAM**



**16QAM**



**Standalone mode - Phone WWAN Tx OFF:  
(Head Power mode)**

**<LTE Band 2>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|
| Channel         |            |         |           | 18700                    | 18900                       | 19100                     |                        |
| Frequency (MHz) |            |         |           | 1860                     | 1880                        | 1900                      |                        |
| 20              | QPSK       | 1       | 0         | 23.99                    | 23.73                       | 23.75                     | 24                     |
| 20              | QPSK       | 1       | 49        | 23.72                    | 23.68                       | 23.62                     |                        |
| 20              | QPSK       | 1       | 99        | 23.89                    | 23.70                       | 23.59                     |                        |
| 20              | QPSK       | 50      | 0         | 22.92                    | 22.90                       | 22.90                     | 23                     |
| 20              | QPSK       | 50      | 24        | 22.85                    | 22.82                       | 22.85                     |                        |
| 20              | QPSK       | 50      | 50        | 22.80                    | 22.78                       | 22.76                     |                        |
| 20              | QPSK       | 100     | 0         | 22.87                    | 22.84                       | 22.83                     |                        |
| 20              | 16QAM      | 1       | 0         | 22.96                    | 22.94                       | 22.86                     | 23                     |
| 20              | 16QAM      | 1       | 49        | 22.96                    | 22.75                       | 22.99                     |                        |
| 20              | 16QAM      | 1       | 99        | 22.98                    | 22.91                       | 22.95                     |                        |
| 20              | 16QAM      | 50      | 0         | 21.89                    | 21.86                       | 21.90                     | 22                     |
| 20              | 16QAM      | 50      | 24        | 21.85                    | 21.79                       | 21.80                     |                        |
| 20              | 16QAM      | 50      | 50        | 21.85                    | 21.72                       | 21.79                     |                        |
| 20              | 16QAM      | 100     | 0         | 21.83                    | 21.77                       | 21.79                     |                        |
| 20              | 64QAM      | 1       | 0         | 22.00                    | 21.99                       | 21.85                     | 22                     |
| 20              | 64QAM      | 1       | 49        | 21.99                    | 21.72                       | 22.00                     |                        |
| 20              | 64QAM      | 1       | 99        | 21.88                    | 21.95                       | 21.94                     |                        |
| 20              | 64QAM      | 50      | 0         | 20.90                    | 20.92                       | 20.97                     | 21                     |
| 20              | 64QAM      | 50      | 24        | 20.79                    | 20.78                       | 20.89                     |                        |
| 20              | 64QAM      | 50      | 50        | 20.83                    | 20.79                       | 20.76                     |                        |
| 20              | 64QAM      | 100     | 0         | 20.76                    | 20.76                       | 20.82                     |                        |
| Channel         |            |         |           | 18675                    | 18900                       | 19125                     |                        |
| Frequency (MHz) |            |         |           | 1857.5                   | 1880                        | 1902.5                    |                        |
| 15              | QPSK       | 1       | 0         | 23.81                    | 23.72                       | 23.71                     | 24                     |
| 15              | QPSK       | 1       | 37        | 23.65                    | 23.62                       | 23.62                     |                        |
| 15              | QPSK       | 1       | 74        | 23.72                    | 23.74                       | 23.60                     |                        |
| 15              | QPSK       | 36      | 0         | 22.87                    | 22.86                       | 22.86                     | 23                     |
| 15              | QPSK       | 36      | 20        | 22.86                    | 22.80                       | 22.81                     |                        |
| 15              | QPSK       | 36      | 39        | 22.80                    | 22.73                       | 22.77                     |                        |
| 15              | QPSK       | 75      | 0         | 22.83                    | 22.80                       | 22.81                     |                        |
| 15              | 16QAM      | 1       | 0         | 22.98                    | 22.92                       | 22.96                     | 23                     |
| 15              | 16QAM      | 1       | 37        | 22.99                    | 22.99                       | 22.98                     |                        |
| 15              | 16QAM      | 1       | 74        | 22.92                    | 22.87                       | 22.95                     |                        |
| 15              | 16QAM      | 36      | 0         | 21.88                    | 21.80                       | 21.79                     | 22                     |
| 15              | 16QAM      | 36      | 20        | 21.86                    | 21.76                       | 21.76                     |                        |
| 15              | 16QAM      | 36      | 39        | 21.78                    | 21.70                       | 21.70                     |                        |
| 15              | 16QAM      | 75      | 0         | 21.83                    | 21.77                       | 21.80                     |                        |
| 15              | 64QAM      | 1       | 0         | 22.05                    | 21.99                       | 21.76                     | 22                     |
| 15              | 64QAM      | 1       | 37        | 21.99                    | 21.75                       | 21.91                     |                        |
| 15              | 64QAM      | 1       | 74        | 22.02                    | 21.89                       | 22.03                     |                        |
| 15              | 64QAM      | 36      | 0         | 20.97                    | 20.80                       | 20.92                     | 21                     |
| 15              | 64QAM      | 36      | 20        | 20.85                    | 20.80                       | 20.72                     |                        |
| 15              | 64QAM      | 36      | 39        | 20.81                    | 20.79                       | 20.75                     |                        |
| 15              | 64QAM      | 75      | 0         | 20.85                    | 20.80                       | 20.77                     |                        |



| Channel         |       |    |    | 18650  | 18900 | 19150  | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1855   | 1880  | 1905   |                        |
| 10              | QPSK  | 1  | 0  | 23.86  | 23.75 | 23.82  | 24                     |
| 10              | QPSK  | 1  | 25 | 23.85  | 23.80 | 23.70  |                        |
| 10              | QPSK  | 1  | 49 | 23.81  | 23.66 | 23.76  |                        |
| 10              | QPSK  | 25 | 0  | 22.93  | 22.85 | 22.82  | 23                     |
| 10              | QPSK  | 25 | 12 | 22.93  | 22.86 | 22.85  |                        |
| 10              | QPSK  | 25 | 25 | 22.86  | 22.77 | 22.76  |                        |
| 10              | QPSK  | 50 | 0  | 22.95  | 22.84 | 22.80  | 23                     |
| 10              | 16QAM | 1  | 0  | 22.94  | 22.98 | 22.99  |                        |
| 10              | 16QAM | 1  | 25 | 22.99  | 22.86 | 22.91  |                        |
| 10              | 16QAM | 1  | 49 | 23.00  | 22.94 | 22.85  | 22                     |
| 10              | 16QAM | 25 | 0  | 21.92  | 21.83 | 21.82  |                        |
| 10              | 16QAM | 25 | 12 | 21.90  | 21.83 | 21.84  |                        |
| 10              | 16QAM | 25 | 25 | 21.88  | 21.78 | 21.77  | 22                     |
| 10              | 16QAM | 50 | 0  | 21.88  | 21.81 | 21.83  |                        |
| 10              | 64QAM | 1  | 0  | 22.00  | 21.94 | 21.82  |                        |
| 10              | 64QAM | 1  | 25 | 21.86  | 21.70 | 21.96  | 22                     |
| 10              | 64QAM | 1  | 49 | 21.89  | 21.99 | 22.05  |                        |
| 10              | 64QAM | 25 | 0  | 20.88  | 20.93 | 20.86  | 21                     |
| 10              | 64QAM | 25 | 12 | 20.84  | 20.87 | 20.70  |                        |
| 10              | 64QAM | 25 | 25 | 20.93  | 20.75 | 20.70  |                        |
| 10              | 64QAM | 50 | 0  | 20.79  | 20.77 | 20.80  |                        |
| Channel         |       |    |    | 18625  | 18900 | 19175  | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 1852.5 | 1880  | 1907.5 |                        |
| 5               | QPSK  | 1  | 0  | 23.63  | 23.23 | 23.47  | 24                     |
| 5               | QPSK  | 1  | 12 | 23.99  | 23.64 | 23.49  |                        |
| 5               | QPSK  | 1  | 24 | 23.98  | 23.80 | 22.55  |                        |
| 5               | QPSK  | 12 | 0  | 22.92  | 22.97 | 22.92  | 23                     |
| 5               | QPSK  | 12 | 7  | 22.99  | 22.87 | 22.98  |                        |
| 5               | QPSK  | 12 | 13 | 22.95  | 22.84 | 22.93  |                        |
| 5               | QPSK  | 25 | 0  | 22.99  | 22.98 | 22.91  | 23                     |
| 5               | 16QAM | 1  | 0  | 22.86  | 22.88 | 22.75  |                        |
| 5               | 16QAM | 1  | 12 | 21.99  | 21.89 | 22.29  |                        |
| 5               | 16QAM | 1  | 24 | 22.93  | 22.63 | 22.51  | 22                     |
| 5               | 16QAM | 12 | 0  | 21.96  | 21.95 | 21.90  |                        |
| 5               | 16QAM | 12 | 7  | 21.97  | 21.94 | 21.92  |                        |
| 5               | 16QAM | 12 | 13 | 21.98  | 21.84 | 21.91  | 22                     |
| 5               | 16QAM | 25 | 0  | 21.90  | 21.81 | 21.80  |                        |
| 5               | 64QAM | 1  | 0  | 22.06  | 21.93 | 21.90  |                        |
| 5               | 64QAM | 1  | 12 | 21.93  | 21.75 | 21.94  | 22                     |
| 5               | 64QAM | 1  | 24 | 22.05  | 21.96 | 21.95  |                        |
| 5               | 64QAM | 12 | 0  | 20.93  | 20.94 | 20.88  | 21                     |
| 5               | 64QAM | 12 | 7  | 20.80  | 20.77 | 20.80  |                        |
| 5               | 64QAM | 12 | 13 | 20.86  | 20.72 | 20.69  |                        |
| 5               | 64QAM | 25 | 0  | 20.81  | 20.83 | 20.78  |                        |



| Channel         |       |    |    | 18615  | 18900 | 19185  | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1851.5 | 1880  | 1908.5 |                        |
| 3               | QPSK  | 1  | 0  | 23.61  | 23.15 | 23.22  | 24                     |
| 3               | QPSK  | 1  | 8  | 23.29  | 23.49 | 22.92  |                        |
| 3               | QPSK  | 1  | 14 | 23.72  | 23.47 | 23.07  |                        |
| 3               | QPSK  | 8  | 0  | 22.74  | 22.49 | 22.65  | 23                     |
| 3               | QPSK  | 8  | 4  | 22.72  | 22.59 | 22.74  |                        |
| 3               | QPSK  | 8  | 7  | 22.73  | 22.60 | 22.53  |                        |
| 3               | QPSK  | 15 | 0  | 22.76  | 22.65 | 22.62  | 23                     |
| 3               | 16QAM | 1  | 0  | 22.66  | 22.90 | 22.62  |                        |
| 3               | 16QAM | 1  | 8  | 22.26  | 22.93 | 22.52  |                        |
| 3               | 16QAM | 1  | 14 | 22.99  | 22.78 | 22.55  | 22                     |
| 3               | 16QAM | 8  | 0  | 21.90  | 21.52 | 21.80  |                        |
| 3               | 16QAM | 8  | 4  | 21.74  | 21.63 | 21.40  |                        |
| 3               | 16QAM | 8  | 7  | 21.81  | 21.62 | 21.55  | 22                     |
| 3               | 16QAM | 15 | 0  | 21.75  | 21.56 | 21.71  |                        |
| 3               | 64QAM | 1  | 0  | 22.03  | 21.87 | 21.83  |                        |
| 3               | 64QAM | 1  | 8  | 22.03  | 21.68 | 21.95  | 22                     |
| 3               | 64QAM | 1  | 14 | 21.97  | 21.90 | 21.85  |                        |
| 3               | 64QAM | 8  | 0  | 20.92  | 20.96 | 20.87  | 21                     |
| 3               | 64QAM | 8  | 4  | 20.84  | 20.89 | 20.76  |                        |
| 3               | 64QAM | 8  | 7  | 20.82  | 20.82 | 20.83  |                        |
| 3               | 64QAM | 15 | 0  | 20.77  | 20.87 | 20.74  |                        |
| Channel         |       |    |    | 18607  | 18900 | 19193  | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 1850.7 | 1880  | 1909.3 |                        |
| 1.4             | QPSK  | 1  | 0  | 23.47  | 23.73 | 23.65  | 24                     |
| 1.4             | QPSK  | 1  | 3  | 23.36  | 23.65 | 22.82  |                        |
| 1.4             | QPSK  | 1  | 5  | 23.39  | 23.37 | 23.69  |                        |
| 1.4             | QPSK  | 3  | 0  | 23.31  | 23.38 | 22.83  | 23                     |
| 1.4             | QPSK  | 3  | 1  | 22.96  | 23.50 | 22.76  |                        |
| 1.4             | QPSK  | 3  | 3  | 23.50  | 23.55 | 23.59  |                        |
| 1.4             | QPSK  | 6  | 0  | 22.62  | 22.40 | 22.60  | 23                     |
| 1.4             | 16QAM | 1  | 0  | 22.99  | 22.18 | 22.58  |                        |
| 1.4             | 16QAM | 1  | 3  | 22.99  | 22.62 | 22.46  |                        |
| 1.4             | 16QAM | 1  | 5  | 22.44  | 22.95 | 22.63  | 23                     |
| 1.4             | 16QAM | 3  | 0  | 22.30  | 22.43 | 22.09  |                        |
| 1.4             | 16QAM | 3  | 1  | 22.84  | 21.81 | 22.68  |                        |
| 1.4             | 16QAM | 3  | 3  | 22.57  | 22.67 | 22.26  | 22                     |
| 1.4             | 16QAM | 6  | 0  | 21.66  | 21.63 | 21.63  |                        |
| 1.4             | 64QAM | 1  | 0  | 22.02  | 21.93 | 21.90  |                        |
| 1.4             | 64QAM | 1  | 3  | 21.96  | 21.68 | 21.92  | 22                     |
| 1.4             | 64QAM | 1  | 5  | 21.89  | 21.89 | 22.00  |                        |
| 1.4             | 64QAM | 3  | 0  | 20.84  | 20.86 | 20.92  |                        |
| 1.4             | 64QAM | 3  | 1  | 20.77  | 20.77 | 20.85  | 22                     |
| 1.4             | 64QAM | 3  | 3  | 20.82  | 20.62 | 20.69  |                        |
| 1.4             | 64QAM | 6  | 0  | 20.83  | 20.69 | 20.88  |                        |
| 1.4             | 64QAM | 6  | 0  | 20.83  | 20.69 | 20.88  | 21                     |



**<LTE Band 4>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|
| Channel         |            |         |           | 20050                 | 20175                    | 20300                  |                     |
| Frequency (MHz) |            |         |           | 1720                  | 1732.5                   | 1745                   |                     |
| 20              | QPSK       | 1       | 0         | 23.65                 | 23.96                    | 23.86                  | 24                  |
| 20              | QPSK       | 1       | 49        | 23.68                 | 23.65                    | 23.69                  |                     |
| 20              | QPSK       | 1       | 99        | 23.66                 | 23.82                    | 23.63                  |                     |
| 20              | QPSK       | 50      | 0         | 22.78                 | 22.85                    | 22.87                  | 23                  |
| 20              | QPSK       | 50      | 24        | 22.79                 | 22.83                    | 22.79                  |                     |
| 20              | QPSK       | 50      | 50        | 22.73                 | 22.77                    | 22.75                  |                     |
| 20              | QPSK       | 100     | 0         | 22.74                 | 22.83                    | 22.82                  |                     |
| 20              | 16QAM      | 1       | 0         | 22.97                 | 22.96                    | 22.99                  | 23                  |
| 20              | 16QAM      | 1       | 49        | 22.88                 | 22.82                    | 22.83                  |                     |
| 20              | 16QAM      | 1       | 99        | 22.99                 | 22.80                    | 22.84                  |                     |
| 20              | 16QAM      | 50      | 0         | 21.84                 | 21.88                    | 21.91                  | 22                  |
| 20              | 16QAM      | 50      | 24        | 21.79                 | 21.83                    | 21.84                  |                     |
| 20              | 16QAM      | 50      | 50        | 21.74                 | 21.80                    | 21.73                  |                     |
| 20              | 16QAM      | 100     | 0         | 21.81                 | 21.79                    | 21.78                  |                     |
| 20              | 64QAM      | 1       | 0         | 22.00                 | 21.88                    | 22.00                  | 22                  |
| 20              | 64QAM      | 1       | 49        | 21.93                 | 21.72                    | 21.81                  |                     |
| 20              | 64QAM      | 1       | 99        | 21.98                 | 21.72                    | 21.79                  |                     |
| 20              | 64QAM      | 50      | 0         | 20.92                 | 20.92                    | 20.95                  | 21                  |
| 20              | 64QAM      | 50      | 24        | 20.74                 | 20.92                    | 20.91                  |                     |
| 20              | 64QAM      | 50      | 50        | 20.71                 | 20.84                    | 20.70                  |                     |
| 20              | 64QAM      | 100     | 0         | 20.81                 | 20.88                    | 20.88                  |                     |
| Channel         |            |         |           | 20025                 | 20175                    | 20325                  | Tune-up limit (dBm) |
| Frequency (MHz) |            |         |           | 1717.5                | 1732.5                   | 1747.5                 |                     |
| 15              | QPSK       | 1       | 0         | 23.74                 | 23.90                    | 23.77                  | 24                  |
| 15              | QPSK       | 1       | 37        | 23.66                 | 23.70                    | 23.63                  |                     |
| 15              | QPSK       | 1       | 74        | 23.68                 | 23.81                    | 23.60                  |                     |
| 15              | QPSK       | 36      | 0         | 22.86                 | 22.89                    | 22.89                  | 23                  |
| 15              | QPSK       | 36      | 20        | 22.87                 | 22.90                    | 22.84                  |                     |
| 15              | QPSK       | 36      | 39        | 22.78                 | 22.83                    | 22.80                  |                     |
| 15              | QPSK       | 75      | 0         | 22.78                 | 22.87                    | 22.82                  |                     |
| 15              | 16QAM      | 1       | 0         | 22.99                 | 22.99                    | 22.99                  | 23                  |
| 15              | 16QAM      | 1       | 37        | 22.99                 | 22.97                    | 22.99                  |                     |
| 15              | 16QAM      | 1       | 74        | 22.96                 | 22.99                    | 22.99                  |                     |
| 15              | 16QAM      | 36      | 0         | 21.84                 | 21.89                    | 21.86                  | 22                  |
| 15              | 16QAM      | 36      | 20        | 21.83                 | 21.88                    | 21.86                  |                     |
| 15              | 16QAM      | 36      | 39        | 21.80                 | 21.79                    | 21.79                  |                     |
| 15              | 16QAM      | 75      | 0         | 21.83                 | 21.86                    | 21.82                  |                     |
| 15              | 64QAM      | 1       | 0         | 21.92                 | 21.98                    | 21.90                  | 22                  |
| 15              | 64QAM      | 1       | 37        | 21.88                 | 21.89                    | 21.85                  |                     |
| 15              | 64QAM      | 1       | 74        | 22.00                 | 21.80                    | 21.94                  |                     |
| 15              | 64QAM      | 36      | 0         | 20.92                 | 20.89                    | 20.95                  | 21                  |
| 15              | 64QAM      | 36      | 20        | 20.74                 | 20.75                    | 20.90                  |                     |
| 15              | 64QAM      | 36      | 39        | 20.80                 | 20.75                    | 20.65                  |                     |
| 15              | 64QAM      | 75      | 0         | 20.85                 | 20.86                    | 20.71                  |                     |



| Channel         |       |    |    | 20000  | 20175  | 20350  | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1715   | 1732.5 | 1750   |                        |
| 10              | QPSK  | 1  | 0  | 23.74  | 23.85  | 23.81  | 24                     |
| 10              | QPSK  | 1  | 25 | 23.64  | 23.95  | 23.74  |                        |
| 10              | QPSK  | 1  | 49 | 23.64  | 23.69  | 23.63  |                        |
| 10              | QPSK  | 25 | 0  | 22.78  | 22.87  | 22.82  | 23                     |
| 10              | QPSK  | 25 | 12 | 22.74  | 22.88  | 22.83  |                        |
| 10              | QPSK  | 25 | 25 | 22.76  | 22.81  | 22.77  |                        |
| 10              | QPSK  | 50 | 0  | 22.79  | 22.81  | 22.80  |                        |
| 10              | 16QAM | 1  | 0  | 23.00  | 22.99  | 22.99  | 23                     |
| 10              | 16QAM | 1  | 25 | 22.86  | 22.99  | 22.99  |                        |
| 10              | 16QAM | 1  | 49 | 22.88  | 22.99  | 22.85  |                        |
| 10              | 16QAM | 25 | 0  | 21.77  | 21.87  | 21.83  | 22                     |
| 10              | 16QAM | 25 | 12 | 21.78  | 21.87  | 21.85  |                        |
| 10              | 16QAM | 25 | 25 | 21.77  | 21.80  | 21.81  |                        |
| 10              | 16QAM | 50 | 0  | 21.80  | 21.87  | 21.85  |                        |
| 10              | 64QAM | 1  | 0  | 21.98  | 21.99  | 21.91  | 22                     |
| 10              | 64QAM | 1  | 25 | 21.91  | 21.87  | 21.90  |                        |
| 10              | 64QAM | 1  | 49 | 21.93  | 21.77  | 21.79  |                        |
| 10              | 64QAM | 25 | 0  | 20.90  | 20.93  | 20.90  | 21                     |
| 10              | 64QAM | 25 | 12 | 20.69  | 20.74  | 20.94  |                        |
| 10              | 64QAM | 25 | 25 | 20.65  | 20.72  | 20.63  |                        |
| 10              | 64QAM | 50 | 0  | 20.85  | 20.88  | 20.80  |                        |
| Channel         |       |    |    | 19975  | 20175  | 20375  | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 1712.5 | 1732.5 | 1752.5 |                        |
| 5               | QPSK  | 1  | 0  | 23.39  | 23.50  | 23.10  | 24                     |
| 5               | QPSK  | 1  | 12 | 22.83  | 23.73  | 22.60  |                        |
| 5               | QPSK  | 1  | 24 | 23.66  | 23.87  | 23.55  |                        |
| 5               | QPSK  | 12 | 0  | 22.74  | 22.91  | 22.90  | 23                     |
| 5               | QPSK  | 12 | 7  | 22.85  | 22.89  | 22.99  |                        |
| 5               | QPSK  | 12 | 13 | 22.84  | 22.87  | 22.80  |                        |
| 5               | QPSK  | 25 | 0  | 22.78  | 22.92  | 22.81  |                        |
| 5               | 16QAM | 1  | 0  | 22.95  | 22.97  | 22.99  | 23                     |
| 5               | 16QAM | 1  | 12 | 22.77  | 22.99  | 22.94  |                        |
| 5               | 16QAM | 1  | 24 | 22.66  | 22.59  | 22.67  |                        |
| 5               | 16QAM | 12 | 0  | 21.77  | 21.92  | 21.87  | 22                     |
| 5               | 16QAM | 12 | 7  | 21.83  | 21.88  | 21.77  |                        |
| 5               | 16QAM | 12 | 13 | 21.79  | 21.91  | 21.84  |                        |
| 5               | 16QAM | 25 | 0  | 21.87  | 21.80  | 21.87  |                        |
| 5               | 64QAM | 1  | 0  | 21.90  | 21.95  | 21.89  | 22                     |
| 5               | 64QAM | 1  | 12 | 21.79  | 21.77  | 21.78  |                        |
| 5               | 64QAM | 1  | 24 | 21.99  | 21.73  | 21.89  |                        |
| 5               | 64QAM | 12 | 0  | 20.90  | 20.82  | 21.01  | 21                     |
| 5               | 64QAM | 12 | 7  | 20.87  | 20.89  | 20.92  |                        |
| 5               | 64QAM | 12 | 13 | 20.71  | 20.74  | 20.68  |                        |
| 5               | 64QAM | 25 | 0  | 20.88  | 20.70  | 20.80  |                        |



| Channel         |       |    |    | 19965  | 20175  | 20385  | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1711.5 | 1732.5 | 1753.5 |                        |
| 3               | QPSK  | 1  | 0  | 23.17  | 23.38  | 23.89  | 24                     |
| 3               | QPSK  | 1  | 8  | 23.72  | 23.33  | 23.67  |                        |
| 3               | QPSK  | 1  | 14 | 23.49  | 23.59  | 23.41  |                        |
| 3               | QPSK  | 8  | 0  | 22.48  | 22.67  | 22.49  | 23                     |
| 3               | QPSK  | 8  | 4  | 22.49  | 22.67  | 22.49  |                        |
| 3               | QPSK  | 8  | 7  | 22.41  | 22.63  | 22.58  |                        |
| 3               | QPSK  | 15 | 0  | 22.65  | 22.76  | 22.68  |                        |
| 3               | 16QAM | 1  | 0  | 22.75  | 22.99  | 22.85  | 23                     |
| 3               | 16QAM | 1  | 8  | 22.68  | 22.83  | 22.68  |                        |
| 3               | 16QAM | 1  | 14 | 22.41  | 22.41  | 22.64  |                        |
| 3               | 16QAM | 8  | 0  | 21.60  | 21.53  | 21.53  | 22                     |
| 3               | 16QAM | 8  | 4  | 21.69  | 21.84  | 21.60  |                        |
| 3               | 16QAM | 8  | 7  | 21.62  | 21.79  | 21.50  |                        |
| 3               | 16QAM | 15 | 0  | 21.56  | 21.55  | 21.70  |                        |
| 3               | 64QAM | 1  | 0  | 21.99  | 22.00  | 21.99  | 22                     |
| 3               | 64QAM | 1  | 8  | 21.88  | 21.73  | 21.84  |                        |
| 3               | 64QAM | 1  | 14 | 21.97  | 21.88  | 21.90  |                        |
| 3               | 64QAM | 8  | 0  | 20.90  | 20.94  | 20.86  | 21                     |
| 3               | 64QAM | 8  | 4  | 20.70  | 20.90  | 20.87  |                        |
| 3               | 64QAM | 8  | 7  | 20.64  | 20.87  | 20.80  |                        |
| 3               | 64QAM | 15 | 0  | 20.77  | 20.71  | 20.69  |                        |
| Channel         |       |    |    | 19957  | 20175  | 20393  | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 1710.7 | 1732.5 | 1754.3 |                        |
| 1.4             | QPSK  | 1  | 0  | 23.85  | 23.76  | 23.54  | 24                     |
| 1.4             | QPSK  | 1  | 3  | 23.34  | 23.07  | 22.61  |                        |
| 1.4             | QPSK  | 1  | 5  | 23.20  | 23.69  | 23.41  |                        |
| 1.4             | QPSK  | 3  | 0  | 23.41  | 23.10  | 23.16  |                        |
| 1.4             | QPSK  | 3  | 1  | 23.30  | 23.12  | 23.37  |                        |
| 1.4             | QPSK  | 3  | 3  | 23.29  | 23.39  | 23.25  |                        |
| 1.4             | QPSK  | 6  | 0  | 22.53  | 22.50  | 22.51  | 23                     |
| 1.4             | 16QAM | 1  | 0  | 22.44  | 22.80  | 22.70  | 23                     |
| 1.4             | 16QAM | 1  | 3  | 22.58  | 22.42  | 22.98  |                        |
| 1.4             | 16QAM | 1  | 5  | 22.90  | 22.86  | 22.27  |                        |
| 1.4             | 16QAM | 3  | 0  | 22.13  | 22.42  | 22.18  |                        |
| 1.4             | 16QAM | 3  | 1  | 22.22  | 22.47  | 22.32  |                        |
| 1.4             | 16QAM | 3  | 3  | 22.52  | 22.51  | 22.22  |                        |
| 1.4             | 16QAM | 6  | 0  | 21.52  | 21.64  | 21.54  | 22                     |
| 1.4             | 64QAM | 1  | 0  | 21.89  | 21.95  | 22.00  | 22                     |
| 1.4             | 64QAM | 1  | 3  | 21.93  | 21.92  | 21.88  |                        |
| 1.4             | 64QAM | 1  | 5  | 21.94  | 21.81  | 21.77  |                        |
| 1.4             | 64QAM | 3  | 0  | 20.75  | 20.81  | 20.96  |                        |
| 1.4             | 64QAM | 3  | 1  | 20.89  | 20.84  | 20.83  |                        |
| 1.4             | 64QAM | 3  | 3  | 20.79  | 20.72  | 20.71  |                        |
| 1.4             | 64QAM | 6  | 0  | 20.88  | 20.82  | 20.86  | 21                     |



**<LTE Band 5>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|
| Channel         |            |         |           | 20450                 | 20525                    | 20600                  |                     |
| Frequency (MHz) |            |         |           | 829                   | 836.5                    | 844                    |                     |
| 10              | QPSK       | 1       | 0         | 23.81                 | 23.56                    | 23.40                  | 24                  |
| 10              | QPSK       | 1       | 25        | 23.39                 | 23.54                    | 23.54                  |                     |
| 10              | QPSK       | 1       | 49        | 23.50                 | 23.41                    | 23.42                  |                     |
| 10              | QPSK       | 25      | 0         | 22.62                 | 22.62                    | 22.61                  | 23                  |
| 10              | QPSK       | 25      | 12        | 22.60                 | 22.58                    | 22.58                  |                     |
| 10              | QPSK       | 25      | 25        | 22.52                 | 22.50                    | 22.52                  |                     |
| 10              | QPSK       | 50      | 0         | 22.58                 | 22.55                    | 22.57                  |                     |
| 10              | 16QAM      | 1       | 0         | 22.75                 | 22.83                    | 22.64                  | 23                  |
| 10              | 16QAM      | 1       | 25        | 22.68                 | 22.64                    | 22.74                  |                     |
| 10              | 16QAM      | 1       | 49        | 22.61                 | 22.58                    | 22.72                  |                     |
| 10              | 16QAM      | 25      | 0         | 21.62                 | 21.66                    | 21.60                  | 22                  |
| 10              | 16QAM      | 25      | 12        | 21.60                 | 21.60                    | 21.59                  |                     |
| 10              | 16QAM      | 25      | 25        | 21.55                 | 21.47                    | 21.53                  |                     |
| 10              | 16QAM      | 50      | 0         | 21.60                 | 21.56                    | 21.58                  |                     |
| 10              | 64QAM      | 1       | 0         | 21.56                 | 21.63                    | 21.57                  | 22                  |
| 10              | 64QAM      | 1       | 25        | 21.43                 | 21.60                    | 21.47                  |                     |
| 10              | 64QAM      | 1       | 49        | 21.33                 | 21.53                    | 21.46                  |                     |
| 10              | 64QAM      | 25      | 0         | 20.33                 | 20.39                    | 20.36                  | 21                  |
| 10              | 64QAM      | 25      | 12        | 20.16                 | 20.28                    | 20.12                  |                     |
| 10              | 64QAM      | 25      | 25        | 20.36                 | 20.36                    | 20.33                  |                     |
| 10              | 64QAM      | 50      | 0         | 20.25                 | 20.36                    | 20.34                  |                     |
| Channel         |            |         |           | 20425                 | 20525                    | 20625                  | Tune-up limit (dBm) |
| Frequency (MHz) |            |         |           | 826.5                 | 836.5                    | 846.5                  |                     |
| 5               | QPSK       | 1       | 0         | 23.32                 | 22.51                    | 22.88                  | 24                  |
| 5               | QPSK       | 1       | 12        | 23.30                 | 23.54                    | 22.28                  |                     |
| 5               | QPSK       | 1       | 24        | 23.54                 | 23.43                    | 23.21                  |                     |
| 5               | QPSK       | 12      | 0         | 22.53                 | 22.54                    | 22.54                  | 23                  |
| 5               | QPSK       | 12      | 7         | 22.69                 | 22.52                    | 22.55                  |                     |
| 5               | QPSK       | 12      | 13        | 22.59                 | 22.53                    | 22.48                  |                     |
| 5               | QPSK       | 25      | 0         | 22.59                 | 22.57                    | 22.60                  |                     |
| 5               | 16QAM      | 1       | 0         | 22.34                 | 22.59                    | 22.99                  | 23                  |
| 5               | 16QAM      | 1       | 12        | 22.99                 | 22.34                    | 21.47                  |                     |
| 5               | 16QAM      | 1       | 24        | 22.40                 | 22.57                    | 21.44                  |                     |
| 5               | 16QAM      | 12      | 0         | 21.57                 | 21.46                    | 21.65                  | 22                  |
| 5               | 16QAM      | 12      | 7         | 21.63                 | 21.63                    | 21.70                  |                     |
| 5               | 16QAM      | 12      | 13        | 21.52                 | 21.52                    | 21.50                  |                     |
| 5               | 16QAM      | 25      | 0         | 21.59                 | 21.50                    | 21.59                  |                     |
| 5               | 64QAM      | 1       | 0         | 21.28                 | 21.36                    | 21.25                  | 22                  |
| 5               | 64QAM      | 1       | 12        | 21.31                 | 21.41                    | 21.35                  |                     |
| 5               | 64QAM      | 1       | 24        | 21.26                 | 21.33                    | 21.31                  |                     |
| 5               | 64QAM      | 12      | 0         | 20.24                 | 20.39                    | 20.21                  | 21                  |
| 5               | 64QAM      | 12      | 7         | 20.24                 | 20.41                    | 20.29                  |                     |
| 5               | 64QAM      | 12      | 13        | 20.37                 | 20.39                    | 20.19                  |                     |
| 5               | 64QAM      | 25      | 0         | 20.34                 | 20.47                    | 20.30                  |                     |



| Channel         |       |    |    | 20415 | 20525 | 20635 | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|-------|-------|-------|------------------------|
| Frequency (MHz) |       |    |    | 825.5 | 836.5 | 847.5 |                        |
| 3               | QPSK  | 1  | 0  | 23.37 | 23.23 | 23.80 | 24                     |
| 3               | QPSK  | 1  | 8  | 22.72 | 23.27 | 23.64 |                        |
| 3               | QPSK  | 1  | 14 | 23.09 | 22.69 | 23.29 |                        |
| 3               | QPSK  | 8  | 0  | 22.99 | 22.60 | 22.63 | 23                     |
| 3               | QPSK  | 8  | 4  | 22.45 | 22.69 | 22.35 |                        |
| 3               | QPSK  | 8  | 7  | 22.51 | 22.68 | 22.61 |                        |
| 3               | QPSK  | 15 | 0  | 22.57 | 22.55 | 22.60 | 23                     |
| 3               | 16QAM | 1  | 0  | 21.95 | 22.35 | 22.51 |                        |
| 3               | 16QAM | 1  | 8  | 21.62 | 22.41 | 22.83 |                        |
| 3               | 16QAM | 1  | 14 | 21.81 | 22.26 | 22.73 | 22                     |
| 3               | 16QAM | 8  | 0  | 21.62 | 21.68 | 21.80 |                        |
| 3               | 16QAM | 8  | 4  | 21.61 | 21.57 | 21.70 |                        |
| 3               | 16QAM | 8  | 7  | 21.54 | 21.39 | 21.76 | 22                     |
| 3               | 16QAM | 15 | 0  | 21.63 | 21.66 | 21.82 |                        |
| 3               | 64QAM | 1  | 0  | 21.22 | 21.41 | 21.30 | 22                     |
| 3               | 64QAM | 1  | 8  | 21.20 | 21.40 | 21.27 |                        |
| 3               | 64QAM | 1  | 14 | 21.30 | 21.41 | 21.28 |                        |
| 3               | 64QAM | 8  | 0  | 20.12 | 20.25 | 20.13 | 21                     |
| 3               | 64QAM | 8  | 4  | 20.09 | 20.23 | 20.16 |                        |
| 3               | 64QAM | 8  | 7  | 20.13 | 20.31 | 20.30 |                        |
| 3               | 64QAM | 15 | 0  | 20.20 | 20.34 | 20.19 | 21                     |
| Channel         |       |    |    | 20407 | 20525 | 20643 |                        |
| Frequency (MHz) |       |    |    | 824.7 | 836.5 | 848.3 | Tune-up limit<br>(dBm) |
| 1.4             | QPSK  | 1  | 0  | 22.45 | 23.31 | 23.39 | 24                     |
| 1.4             | QPSK  | 1  | 3  | 22.61 | 23.64 | 23.73 |                        |
| 1.4             | QPSK  | 1  | 5  | 22.82 | 23.32 | 22.22 |                        |
| 1.4             | QPSK  | 3  | 0  | 23.30 | 23.29 | 23.34 | 24                     |
| 1.4             | QPSK  | 3  | 1  | 23.77 | 23.53 | 23.48 |                        |
| 1.4             | QPSK  | 3  | 3  | 23.35 | 23.30 | 23.44 |                        |
| 1.4             | QPSK  | 6  | 0  | 22.19 | 22.31 | 22.40 | 23                     |
| 1.4             | 16QAM | 1  | 0  | 21.80 | 22.53 | 21.89 | 23                     |
| 1.4             | 16QAM | 1  | 3  | 21.52 | 22.68 | 22.62 |                        |
| 1.4             | 16QAM | 1  | 5  | 22.41 | 22.67 | 22.49 |                        |
| 1.4             | 16QAM | 3  | 0  | 22.01 | 21.76 | 22.32 | 23                     |
| 1.4             | 16QAM | 3  | 1  | 22.58 | 22.43 | 21.96 |                        |
| 1.4             | 16QAM | 3  | 3  | 22.08 | 22.02 | 22.55 |                        |
| 1.4             | 16QAM | 6  | 0  | 21.37 | 21.44 | 21.48 | 22                     |
| 1.4             | 64QAM | 1  | 0  | 21.09 | 21.25 | 21.20 | 22                     |
| 1.4             | 64QAM | 1  | 3  | 21.06 | 21.19 | 21.09 |                        |
| 1.4             | 64QAM | 1  | 5  | 21.06 | 21.26 | 21.16 |                        |
| 1.4             | 64QAM | 3  | 0  | 20.95 | 21.10 | 20.96 | 22                     |
| 1.4             | 64QAM | 3  | 1  | 21.13 | 21.15 | 21.15 |                        |
| 1.4             | 64QAM | 3  | 3  | 21.01 | 21.03 | 20.92 |                        |
| 1.4             | 64QAM | 6  | 0  | 20.05 | 20.12 | 20.01 | 21                     |



**<LTE Band 13>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|
| Channel         |            |         |           | 23230                    |                             |                           |                        |
| Frequency (MHz) |            |         |           | 782                      |                             |                           |                        |
| 10              | QPSK       | 1       | 0         |                          | 23.49                       |                           | 24                     |
| 10              | QPSK       | 1       | 25        |                          | 23.32                       |                           |                        |
| 10              | QPSK       | 1       | 49        |                          | 23.31                       |                           |                        |
| 10              | QPSK       | 25      | 0         |                          | 22.61                       |                           | 23                     |
| 10              | QPSK       | 25      | 12        |                          | 22.57                       |                           |                        |
| 10              | QPSK       | 25      | 25        |                          | 22.48                       |                           |                        |
| 10              | QPSK       | 50      | 0         |                          | 22.52                       |                           |                        |
| 10              | 16QAM      | 1       | 0         |                          | 22.72                       |                           | 23                     |
| 10              | 16QAM      | 1       | 25        |                          | 22.69                       |                           |                        |
| 10              | 16QAM      | 1       | 49        |                          | 22.50                       |                           |                        |
| 10              | 16QAM      | 25      | 0         |                          | 21.62                       |                           | 22                     |
| 10              | 16QAM      | 25      | 12        |                          | 21.58                       |                           |                        |
| 10              | 16QAM      | 25      | 25        |                          | 21.51                       |                           |                        |
| 10              | 16QAM      | 50      | 0         |                          | 21.52                       |                           |                        |
| 10              | 64QAM      | 1       | 0         |                          | 21.63                       |                           | 22                     |
| 10              | 64QAM      | 1       | 25        |                          | 21.61                       |                           |                        |
| 10              | 64QAM      | 1       | 49        |                          | 21.59                       |                           |                        |
| 10              | 64QAM      | 25      | 0         |                          | 20.51                       |                           | 21                     |
| 10              | 64QAM      | 25      | 12        |                          | 20.38                       |                           |                        |
| 10              | 64QAM      | 25      | 25        |                          | 20.39                       |                           |                        |
| 10              | 64QAM      | 50      | 0         |                          | 20.46                       |                           |                        |
| Channel         |            |         |           | 23205                    | 23230                       | 23255                     | Tune-up limit<br>(dBm) |
| Frequency (MHz) |            |         |           | 779.5                    | 782                         | 784.5                     |                        |
| 5               | QPSK       | 1       | 0         | 23.47                    | 23.09                       | 23.38                     | 24                     |
| 5               | QPSK       | 1       | 12        | 22.79                    | 22.98                       | 23.38                     |                        |
| 5               | QPSK       | 1       | 24        | 23.48                    | 23.11                       | 23.03                     |                        |
| 5               | QPSK       | 12      | 0         | 22.54                    | 22.56                       | 22.56                     | 23                     |
| 5               | QPSK       | 12      | 7         | 22.58                    | 22.49                       | 22.53                     |                        |
| 5               | QPSK       | 12      | 13        | 22.51                    | 22.47                       | 22.47                     |                        |
| 5               | QPSK       | 25      | 0         | 22.53                    | 22.55                       | 22.55                     | 23                     |
| 5               | 16QAM      | 1       | 0         | 22.74                    | 21.96                       | 22.99                     |                        |
| 5               | 16QAM      | 1       | 12        | 22.99                    | 22.37                       | 22.96                     |                        |
| 5               | 16QAM      | 1       | 24        | 22.50                    | 22.13                       | 22.09                     |                        |
| 5               | 16QAM      | 12      | 0         | 21.54                    | 21.57                       | 21.56                     | 22                     |
| 5               | 16QAM      | 12      | 7         | 21.50                    | 21.68                       | 21.54                     |                        |
| 5               | 16QAM      | 12      | 13        | 21.48                    | 21.54                       | 21.40                     |                        |
| 5               | 16QAM      | 25      | 0         | 21.49                    | 21.57                       | 21.54                     |                        |
| 5               | 64QAM      | 1       | 0         | 21.48                    | 21.54                       | 21.49                     | 22                     |
| 5               | 64QAM      | 1       | 12        | 21.61                    | 21.42                       | 21.59                     |                        |
| 5               | 64QAM      | 1       | 24        | 21.45                    | 21.40                       | 21.44                     |                        |
| 5               | 64QAM      | 12      | 0         | 20.50                    | 20.49                       | 20.39                     | 21                     |
| 5               | 64QAM      | 12      | 7         | 20.27                    | 20.37                       | 20.29                     |                        |
| 5               | 64QAM      | 12      | 13        | 20.27                    | 20.25                       | 20.24                     |                        |
| 5               | 64QAM      | 25      | 0         | 20.41                    | 20.31                       | 20.36                     |                        |



**<LTE Band 66>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|
| Channel         |            |         |           | 132072                | 132322                   | 132572                 |                     |
| Frequency (MHz) |            |         |           | 1720                  | 1745                     | 1770                   |                     |
| 20              | QPSK       | 1       | 0         | 23.73                 | 23.99                    | 23.69                  | 24                  |
| 20              | QPSK       | 1       | 49        | 23.57                 | 23.66                    | 23.61                  |                     |
| 20              | QPSK       | 1       | 99        | 23.62                 | 23.49                    | 23.52                  |                     |
| 20              | QPSK       | 50      | 0         | 22.82                 | 22.91                    | 22.85                  | 23                  |
| 20              | QPSK       | 50      | 24        | 22.81                 | 22.82                    | 22.79                  |                     |
| 20              | QPSK       | 50      | 50        | 22.76                 | 22.76                    | 22.48                  |                     |
| 20              | QPSK       | 100     | 0         | 22.79                 | 22.83                    | 22.81                  |                     |
| 20              | 16QAM      | 1       | 0         | 22.90                 | 22.99                    | 22.98                  | 23                  |
| 20              | 16QAM      | 1       | 49        | 22.84                 | 22.94                    | 22.84                  |                     |
| 20              | 16QAM      | 1       | 99        | 22.96                 | 22.80                    | 22.67                  |                     |
| 20              | 16QAM      | 50      | 0         | 21.82                 | 21.94                    | 21.82                  | 22                  |
| 20              | 16QAM      | 50      | 24        | 21.81                 | 21.86                    | 21.74                  |                     |
| 20              | 16QAM      | 50      | 50        | 21.74                 | 21.77                    | 21.69                  |                     |
| 20              | 16QAM      | 100     | 0         | 21.77                 | 21.79                    | 21.75                  |                     |
| 20              | 64QAM      | 1       | 0         | 21.58                 | 21.68                    | 21.61                  | 22                  |
| 20              | 64QAM      | 1       | 49        | 21.67                 | 21.71                    | 21.52                  |                     |
| 20              | 64QAM      | 1       | 99        | 21.55                 | 21.65                    | 21.39                  |                     |
| 20              | 64QAM      | 50      | 0         | 20.48                 | 20.68                    | 20.36                  | 21                  |
| 20              | 64QAM      | 50      | 24        | 20.47                 | 20.70                    | 20.53                  |                     |
| 20              | 64QAM      | 50      | 50        | 20.32                 | 20.59                    | 20.43                  |                     |
| 20              | 64QAM      | 100     | 0         | 20.46                 | 20.57                    | 20.51                  |                     |
| Channel         |            |         |           | 132047                | 132322                   | 132597                 | Tune-up limit (dBm) |
| Frequency (MHz) |            |         |           | 1717.5                | 1745                     | 1772.5                 |                     |
| 15              | QPSK       | 1       | 0         | 23.69                 | 23.80                    | 23.71                  | 24                  |
| 15              | QPSK       | 1       | 37        | 23.68                 | 23.59                    | 23.35                  |                     |
| 15              | QPSK       | 1       | 74        | 23.58                 | 23.68                    | 23.44                  |                     |
| 15              | QPSK       | 36      | 0         | 22.77                 | 22.86                    | 22.81                  | 23                  |
| 15              | QPSK       | 36      | 20        | 22.80                 | 22.84                    | 22.71                  |                     |
| 15              | QPSK       | 36      | 39        | 22.79                 | 22.73                    | 22.34                  |                     |
| 15              | QPSK       | 75      | 0         | 22.74                 | 22.86                    | 22.62                  |                     |
| 15              | 16QAM      | 1       | 0         | 22.97                 | 22.98                    | 22.95                  | 23                  |
| 15              | 16QAM      | 1       | 37        | 22.77                 | 22.85                    | 22.20                  |                     |
| 15              | 16QAM      | 1       | 74        | 22.85                 | 22.94                    | 22.68                  |                     |
| 15              | 16QAM      | 36      | 0         | 21.74                 | 21.87                    | 21.77                  | 22                  |
| 15              | 16QAM      | 36      | 20        | 21.75                 | 21.85                    | 21.79                  |                     |
| 15              | 16QAM      | 36      | 39        | 21.69                 | 21.78                    | 21.45                  |                     |
| 15              | 16QAM      | 75      | 0         | 21.75                 | 21.81                    | 21.74                  |                     |
| 15              | 64QAM      | 1       | 0         | 21.54                 | 21.76                    | 21.55                  | 22                  |
| 15              | 64QAM      | 1       | 37        | 21.55                 | 21.66                    | 21.60                  |                     |
| 15              | 64QAM      | 1       | 74        | 21.50                 | 21.69                    | 21.40                  |                     |
| 15              | 64QAM      | 36      | 0         | 20.33                 | 20.60                    | 20.45                  | 21                  |
| 15              | 64QAM      | 36      | 20        | 20.49                 | 20.55                    | 20.50                  |                     |
| 15              | 64QAM      | 36      | 39        | 20.35                 | 20.53                    | 20.29                  |                     |
| 15              | 64QAM      | 75      | 0         | 20.48                 | 20.61                    | 20.47                  |                     |



| Channel         |       |    |    | 132022 | 132322 | 132622 | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1715   | 1745   | 1775   |                        |
| 10              | QPSK  | 1  | 0  | 23.59  | 23.76  | 23.71  | 24                     |
| 10              | QPSK  | 1  | 25 | 23.59  | 23.71  | 23.19  |                        |
| 10              | QPSK  | 1  | 49 | 23.55  | 23.55  | 23.34  |                        |
| 10              | QPSK  | 25 | 0  | 22.67  | 22.82  | 22.61  | 23                     |
| 10              | QPSK  | 25 | 12 | 22.69  | 22.78  | 22.42  |                        |
| 10              | QPSK  | 25 | 25 | 22.65  | 22.71  | 22.32  |                        |
| 10              | QPSK  | 50 | 0  | 22.69  | 22.77  | 22.48  | 23                     |
| 10              | 16QAM | 1  | 0  | 22.82  | 22.96  | 22.94  |                        |
| 10              | 16QAM | 1  | 25 | 22.86  | 22.98  | 22.64  |                        |
| 10              | 16QAM | 1  | 49 | 22.77  | 22.87  | 22.73  | 22                     |
| 10              | 16QAM | 25 | 0  | 21.70  | 21.81  | 21.70  |                        |
| 10              | 16QAM | 25 | 12 | 21.66  | 21.77  | 21.58  |                        |
| 10              | 16QAM | 25 | 25 | 21.64  | 21.75  | 21.40  | 22                     |
| 10              | 16QAM | 50 | 0  | 21.73  | 21.80  | 21.56  |                        |
| 10              | 64QAM | 1  | 0  | 21.45  | 21.65  | 21.50  | 22                     |
| 10              | 64QAM | 1  | 25 | 21.57  | 21.67  | 21.62  |                        |
| 10              | 64QAM | 1  | 49 | 21.52  | 21.57  | 21.47  |                        |
| 10              | 64QAM | 25 | 0  | 20.31  | 20.49  | 20.46  | 21                     |
| 10              | 64QAM | 25 | 12 | 20.47  | 20.53  | 20.47  |                        |
| 10              | 64QAM | 25 | 25 | 20.40  | 20.48  | 20.36  |                        |
| 10              | 64QAM | 50 | 0  | 20.49  | 20.51  | 20.46  |                        |
| Channel         |       |    |    | 131997 | 132322 | 132647 | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 1712.5 | 1745   | 1777.5 |                        |
| 5               | QPSK  | 1  | 0  | 23.56  | 22.99  | 23.28  | 24                     |
| 5               | QPSK  | 1  | 12 | 23.49  | 22.71  | 22.04  |                        |
| 5               | QPSK  | 1  | 24 | 23.43  | 23.39  | 23.17  |                        |
| 5               | QPSK  | 12 | 0  | 22.56  | 22.52  | 22.35  | 23                     |
| 5               | QPSK  | 12 | 7  | 22.49  | 22.59  | 22.34  |                        |
| 5               | QPSK  | 12 | 13 | 22.45  | 22.56  | 22.30  |                        |
| 5               | QPSK  | 25 | 0  | 22.58  | 22.58  | 22.32  | 23                     |
| 5               | 16QAM | 1  | 0  | 21.92  | 22.18  | 22.61  |                        |
| 5               | 16QAM | 1  | 12 | 21.65  | 21.63  | 21.78  |                        |
| 5               | 16QAM | 1  | 24 | 22.14  | 22.23  | 21.86  | 22                     |
| 5               | 16QAM | 12 | 0  | 21.53  | 21.59  | 21.38  |                        |
| 5               | 16QAM | 12 | 7  | 21.41  | 21.67  | 21.41  |                        |
| 5               | 16QAM | 12 | 13 | 21.43  | 21.51  | 21.40  | 22                     |
| 5               | 16QAM | 25 | 0  | 21.52  | 21.53  | 21.39  |                        |
| 5               | 64QAM | 1  | 0  | 21.52  | 21.55  | 21.49  |                        |
| 5               | 64QAM | 1  | 12 | 21.48  | 21.59  | 21.40  | 22                     |
| 5               | 64QAM | 1  | 24 | 21.47  | 21.54  | 21.38  |                        |
| 5               | 64QAM | 12 | 0  | 20.42  | 20.56  | 20.37  | 21                     |
| 5               | 64QAM | 12 | 7  | 20.37  | 20.55  | 20.45  |                        |
| 5               | 64QAM | 12 | 13 | 20.36  | 20.54  | 20.34  |                        |
| 5               | 64QAM | 25 | 0  | 20.38  | 20.54  | 20.45  |                        |



| Channel         |       |    |    | 131987 | 132322 | 132657 | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1711.5 | 1745   | 1778.5 |                        |
| 3               | QPSK  | 1  | 0  | 23.68  | 23.98  | 22.80  | 24                     |
| 3               | QPSK  | 1  | 8  | 23.46  | 23.06  | 23.25  |                        |
| 3               | QPSK  | 1  | 14 | 23.18  | 23.37  | 23.17  |                        |
| 3               | QPSK  | 8  | 0  | 22.56  | 22.57  | 22.26  | 23                     |
| 3               | QPSK  | 8  | 4  | 22.37  | 22.56  | 22.29  |                        |
| 3               | QPSK  | 8  | 7  | 22.71  | 22.59  | 22.22  |                        |
| 3               | QPSK  | 15 | 0  | 22.40  | 22.69  | 22.29  | 23                     |
| 3               | 16QAM | 1  | 0  | 22.87  | 21.83  | 22.37  |                        |
| 3               | 16QAM | 1  | 8  | 22.82  | 22.37  | 21.23  |                        |
| 3               | 16QAM | 1  | 14 | 21.88  | 22.50  | 22.58  | 22                     |
| 3               | 16QAM | 8  | 0  | 21.47  | 21.64  | 21.38  |                        |
| 3               | 16QAM | 8  | 4  | 21.66  | 21.83  | 21.42  |                        |
| 3               | 16QAM | 8  | 7  | 21.53  | 21.38  | 21.41  | 22                     |
| 3               | 16QAM | 15 | 0  | 21.39  | 21.56  | 21.40  |                        |
| 3               | 64QAM | 1  | 0  | 21.42  | 21.53  | 21.43  | 22                     |
| 3               | 64QAM | 1  | 8  | 21.40  | 21.56  | 21.53  |                        |
| 3               | 64QAM | 1  | 14 | 21.45  | 21.55  | 21.37  |                        |
| 3               | 64QAM | 8  | 0  | 20.36  | 20.40  | 20.30  | 21                     |
| 3               | 64QAM | 8  | 4  | 20.48  | 20.51  | 20.48  |                        |
| 3               | 64QAM | 8  | 7  | 20.40  | 20.48  | 20.40  |                        |
| 3               | 64QAM | 15 | 0  | 20.38  | 20.58  | 20.38  |                        |
| Channel         |       |    |    | 131979 | 132322 | 132665 | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 1710.7 | 1745   | 1779.3 |                        |
| 1.4             | QPSK  | 1  | 0  | 22.34  | 22.81  | 23.17  | 24                     |
| 1.4             | QPSK  | 1  | 3  | 23.38  | 23.41  | 23.11  |                        |
| 1.4             | QPSK  | 1  | 5  | 23.51  | 23.19  | 23.09  |                        |
| 1.4             | QPSK  | 3  | 0  | 23.19  | 23.21  | 23.06  | 23                     |
| 1.4             | QPSK  | 3  | 1  | 23.45  | 23.37  | 23.17  |                        |
| 1.4             | QPSK  | 3  | 3  | 23.17  | 23.49  | 23.23  |                        |
| 1.4             | QPSK  | 6  | 0  | 22.46  | 22.34  | 22.06  | 23                     |
| 1.4             | 16QAM | 1  | 0  | 22.14  | 22.75  | 22.10  |                        |
| 1.4             | 16QAM | 1  | 3  | 22.30  | 22.39  | 22.36  |                        |
| 1.4             | 16QAM | 1  | 5  | 22.44  | 22.72  | 22.23  | 22                     |
| 1.4             | 16QAM | 3  | 0  | 21.95  | 22.30  | 22.06  |                        |
| 1.4             | 16QAM | 3  | 1  | 22.24  | 22.16  | 21.85  |                        |
| 1.4             | 16QAM | 3  | 3  | 22.16  | 22.12  | 22.28  | 22                     |
| 1.4             | 16QAM | 6  | 0  | 21.29  | 21.42  | 21.31  |                        |
| 1.4             | 64QAM | 1  | 0  | 21.14  | 21.31  | 21.23  |                        |
| 1.4             | 64QAM | 1  | 3  | 21.26  | 21.33  | 21.19  | 22                     |
| 1.4             | 64QAM | 1  | 5  | 21.32  | 21.40  | 21.24  |                        |
| 1.4             | 64QAM | 3  | 0  | 21.08  | 21.21  | 21.09  |                        |
| 1.4             | 64QAM | 3  | 1  | 21.15  | 21.28  | 21.10  | 21                     |
| 1.4             | 64QAM | 3  | 3  | 21.03  | 21.19  | 21.12  |                        |
| 1.4             | 64QAM | 6  | 0  | 20.24  | 20.25  | 20.06  |                        |



**Standalone mode - Phone WWAN Tx OFF:  
(Hotspot / Body-worn / Product Specific Power mode)**

**<LTE Band 2>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|
| Channel         |            |         |           | 18700                    | 18900                       | 19100                     |                        |
| Frequency (MHz) |            |         |           | 1860                     | 1880                        | 1900                      |                        |
| 20              | QPSK       | 1       | 0         | 14.97                    | 14.87                       | 14.88                     | 15                     |
| 20              | QPSK       | 1       | 49        | 14.89                    | 14.71                       | 14.82                     |                        |
| 20              | QPSK       | 1       | 99        | 14.86                    | 14.65                       | 14.79                     |                        |
| 20              | QPSK       | 50      | 0         | 14.49                    | 14.42                       | 14.45                     | 15                     |
| 20              | QPSK       | 50      | 24        | 14.45                    | 14.43                       | 14.41                     |                        |
| 20              | QPSK       | 50      | 50        | 14.40                    | 14.35                       | 14.37                     |                        |
| 20              | QPSK       | 100     | 0         | 14.48                    | 14.42                       | 14.46                     | 15                     |
| 20              | 16QAM      | 1       | 0         | 13.98                    | 13.99                       | 13.97                     |                        |
| 20              | 16QAM      | 1       | 49        | 13.88                    | 13.97                       | 13.88                     |                        |
| 20              | 16QAM      | 1       | 99        | 13.83                    | 13.95                       | 13.88                     | 15                     |
| 20              | 16QAM      | 50      | 0         | 12.93                    | 12.87                       | 12.91                     |                        |
| 20              | 16QAM      | 50      | 24        | 12.87                    | 12.84                       | 12.88                     |                        |
| 20              | 16QAM      | 50      | 50        | 12.91                    | 12.81                       | 12.90                     | 15                     |
| 20              | 16QAM      | 100     | 0         | 12.84                    | 12.88                       | 12.86                     |                        |
| 20              | 64QAM      | 1       | 0         | 12.83                    | 12.77                       | 12.81                     |                        |
| 20              | 64QAM      | 1       | 49        | 12.74                    | 12.64                       | 12.69                     | 15                     |
| 20              | 64QAM      | 1       | 99        | 12.68                    | 12.52                       | 12.62                     |                        |
| 20              | 64QAM      | 50      | 0         | 11.69                    | 11.63                       | 11.65                     |                        |
| 20              | 64QAM      | 50      | 24        | 11.62                    | 11.58                       | 11.59                     | 15                     |
| 20              | 64QAM      | 50      | 50        | 11.60                    | 11.55                       | 11.57                     |                        |
| 20              | 64QAM      | 100     | 0         | 11.64                    | 11.58                       | 11.65                     |                        |
| Channel         |            |         |           | 18675                    | 18900                       | 19125                     | Tune-up limit<br>(dBm) |
| Frequency (MHz) |            |         |           | 1857.5                   | 1880                        | 1902.5                    |                        |
| 15              | QPSK       | 1       | 0         | 14.86                    | 14.83                       | 14.85                     | 15                     |
| 15              | QPSK       | 1       | 37        | 14.82                    | 14.59                       | 14.64                     |                        |
| 15              | QPSK       | 1       | 74        | 14.74                    | 14.54                       | 14.73                     |                        |
| 15              | QPSK       | 36      | 0         | 13.99                    | 13.86                       | 13.91                     | 15                     |
| 15              | QPSK       | 36      | 20        | 13.93                    | 13.74                       | 13.76                     |                        |
| 15              | QPSK       | 36      | 39        | 13.84                    | 13.74                       | 13.70                     |                        |
| 15              | QPSK       | 75      | 0         | 13.80                    | 13.83                       | 13.88                     | 15                     |
| 15              | 16QAM      | 1       | 0         | 13.89                    | 13.97                       | 13.98                     |                        |
| 15              | 16QAM      | 1       | 37        | 13.85                    | 13.76                       | 13.83                     |                        |
| 15              | 16QAM      | 1       | 74        | 13.79                    | 13.54                       | 13.90                     | 15                     |
| 15              | 16QAM      | 36      | 0         | 12.91                    | 13.00                       | 12.99                     |                        |
| 15              | 16QAM      | 36      | 20        | 12.96                    | 12.76                       | 12.87                     |                        |
| 15              | 16QAM      | 36      | 39        | 12.97                    | 12.79                       | 12.95                     | 15                     |
| 15              | 16QAM      | 75      | 0         | 12.99                    | 12.80                       | 12.88                     |                        |
| 15              | 64QAM      | 1       | 0         | 12.78                    | 12.83                       | 12.72                     |                        |
| 15              | 64QAM      | 1       | 37        | 12.72                    | 12.70                       | 12.74                     | 15                     |
| 15              | 64QAM      | 1       | 74        | 12.61                    | 12.46                       | 12.61                     |                        |
| 15              | 64QAM      | 36      | 0         | 11.69                    | 11.59                       | 11.58                     |                        |
| 15              | 64QAM      | 36      | 20        | 11.72                    | 11.65                       | 11.58                     | 15                     |
| 15              | 64QAM      | 36      | 39        | 11.64                    | 11.51                       | 11.67                     |                        |
| 15              | 64QAM      | 75      | 0         | 11.62                    | 11.56                       | 11.71                     |                        |



| Channel         |       |    |    | 18650  | 18900 | 19150  | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1855   | 1880  | 1905   |                        |
| 10              | QPSK  | 1  | 0  | 14.48  | 14.44 | 14.32  | 15                     |
| 10              | QPSK  | 1  | 25 | 14.35  | 14.19 | 14.42  |                        |
| 10              | QPSK  | 1  | 49 | 14.29  | 14.09 | 14.27  |                        |
| 10              | QPSK  | 25 | 0  | 13.70  | 13.56 | 13.45  | 15                     |
| 10              | QPSK  | 25 | 12 | 13.43  | 13.36 | 13.57  |                        |
| 10              | QPSK  | 25 | 25 | 13.54  | 13.37 | 13.48  |                        |
| 10              | QPSK  | 50 | 0  | 13.41  | 13.42 | 13.50  |                        |
| 10              | 16QAM | 1  | 0  | 13.72  | 13.76 | 13.61  | 15                     |
| 10              | 16QAM | 1  | 25 | 13.71  | 13.54 | 13.46  |                        |
| 10              | 16QAM | 1  | 49 | 13.56  | 13.51 | 13.55  |                        |
| 10              | 16QAM | 25 | 0  | 12.56  | 12.48 | 12.72  | 15                     |
| 10              | 16QAM | 25 | 12 | 12.65  | 12.42 | 12.65  |                        |
| 10              | 16QAM | 25 | 25 | 12.45  | 12.50 | 12.39  |                        |
| 10              | 16QAM | 50 | 0  | 12.46  | 12.57 | 12.59  |                        |
| 10              | 64QAM | 1  | 0  | 12.90  | 12.73 | 12.86  | 15                     |
| 10              | 64QAM | 1  | 25 | 12.80  | 12.69 | 12.61  |                        |
| 10              | 64QAM | 1  | 49 | 12.75  | 12.60 | 12.68  |                        |
| 10              | 64QAM | 25 | 0  | 11.69  | 11.60 | 11.75  | 15                     |
| 10              | 64QAM | 25 | 12 | 11.65  | 11.52 | 11.61  |                        |
| 10              | 64QAM | 25 | 25 | 11.63  | 11.63 | 11.62  |                        |
| 10              | 64QAM | 50 | 0  | 11.61  | 11.61 | 11.67  |                        |
| Channel         |       |    |    | 18625  | 18900 | 19175  | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 1852.5 | 1880  | 1907.5 |                        |
| 5               | QPSK  | 1  | 0  | 14.88  | 14.84 | 14.72  | 15                     |
| 5               | QPSK  | 1  | 12 | 14.75  | 14.59 | 14.82  |                        |
| 5               | QPSK  | 1  | 24 | 14.69  | 14.49 | 14.67  |                        |
| 5               | QPSK  | 12 | 0  | 13.94  | 13.96 | 13.85  | 15                     |
| 5               | QPSK  | 12 | 7  | 13.83  | 13.76 | 13.97  |                        |
| 5               | QPSK  | 12 | 13 | 13.94  | 13.77 | 13.88  |                        |
| 5               | QPSK  | 25 | 0  | 13.81  | 13.82 | 13.90  |                        |
| 5               | 16QAM | 1  | 0  | 13.97  | 13.96 | 13.95  | 15                     |
| 5               | 16QAM | 1  | 12 | 13.91  | 13.94 | 13.86  |                        |
| 5               | 16QAM | 1  | 24 | 13.96  | 13.91 | 13.95  |                        |
| 5               | 16QAM | 12 | 0  | 12.96  | 12.88 | 12.92  | 15                     |
| 5               | 16QAM | 12 | 7  | 12.95  | 12.82 | 12.91  |                        |
| 5               | 16QAM | 12 | 13 | 12.85  | 12.90 | 12.79  |                        |
| 5               | 16QAM | 25 | 0  | 12.86  | 12.97 | 12.99  |                        |
| 5               | 64QAM | 1  | 0  | 12.77  | 12.71 | 12.73  | 15                     |
| 5               | 64QAM | 1  | 12 | 12.78  | 12.66 | 12.64  |                        |
| 5               | 64QAM | 1  | 24 | 12.72  | 12.50 | 12.63  |                        |
| 5               | 64QAM | 12 | 0  | 11.74  | 11.56 | 11.64  | 15                     |
| 5               | 64QAM | 12 | 7  | 11.69  | 11.58 | 11.59  |                        |
| 5               | 64QAM | 12 | 13 | 11.67  | 11.57 | 11.54  |                        |
| 5               | 64QAM | 25 | 0  | 11.60  | 11.51 | 11.60  |                        |



| Channel         |       |    |    | 18615  | 18900 | 19185  | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1851.5 | 1880  | 1908.5 |                        |
| 3               | QPSK  | 1  | 0  | 14.77  | 14.86 | 14.88  | 15                     |
| 3               | QPSK  | 1  | 8  | 14.72  | 14.67 | 14.79  |                        |
| 3               | QPSK  | 1  | 14 | 14.79  | 14.59 | 14.65  |                        |
| 3               | QPSK  | 8  | 0  | 13.93  | 13.85 | 13.99  | 15                     |
| 3               | QPSK  | 8  | 4  | 13.86  | 13.84 | 13.93  |                        |
| 3               | QPSK  | 8  | 7  | 13.88  | 13.71 | 13.92  |                        |
| 3               | QPSK  | 15 | 0  | 13.86  | 13.92 | 13.89  |                        |
| 3               | 16QAM | 1  | 0  | 13.94  | 13.99 | 13.96  | 15                     |
| 3               | 16QAM | 1  | 8  | 13.89  | 13.95 | 13.87  |                        |
| 3               | 16QAM | 1  | 14 | 13.90  | 13.87 | 13.96  |                        |
| 3               | 16QAM | 8  | 0  | 12.99  | 12.98 | 13.00  | 15                     |
| 3               | 16QAM | 8  | 4  | 13.07  | 12.82 | 12.91  |                        |
| 3               | 16QAM | 8  | 7  | 12.98  | 12.73 | 12.83  |                        |
| 3               | 16QAM | 15 | 0  | 13.00  | 12.82 | 12.83  |                        |
| 3               | 64QAM | 1  | 0  | 12.77  | 12.70 | 12.87  | 15                     |
| 3               | 64QAM | 1  | 8  | 12.83  | 12.61 | 12.61  |                        |
| 3               | 64QAM | 1  | 14 | 12.69  | 12.60 | 12.55  |                        |
| 3               | 64QAM | 8  | 0  | 11.64  | 11.71 | 11.63  | 15                     |
| 3               | 64QAM | 8  | 4  | 11.66  | 11.52 | 11.55  |                        |
| 3               | 64QAM | 8  | 7  | 11.60  | 11.53 | 11.57  |                        |
| 3               | 64QAM | 15 | 0  | 11.54  | 11.56 | 11.64  |                        |
| Channel         |       |    |    | 18607  | 18900 | 19193  | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 1850.7 | 1880  | 1909.3 |                        |
| 1.4             | QPSK  | 1  | 0  | 14.84  | 14.83 | 14.86  | 15                     |
| 1.4             | QPSK  | 1  | 3  | 14.84  | 14.60 | 14.80  |                        |
| 1.4             | QPSK  | 1  | 5  | 14.74  | 14.59 | 14.62  |                        |
| 1.4             | QPSK  | 3  | 0  | 14.03  | 13.82 | 13.88  | 15                     |
| 1.4             | QPSK  | 3  | 1  | 13.98  | 13.84 | 13.90  |                        |
| 1.4             | QPSK  | 3  | 3  | 13.88  | 13.71 | 13.94  |                        |
| 1.4             | QPSK  | 6  | 0  | 13.99  | 13.95 | 13.96  |                        |
| 1.4             | 16QAM | 1  | 0  | 13.92  | 13.99 | 13.92  | 15                     |
| 1.4             | 16QAM | 1  | 3  | 13.84  | 13.93 | 13.92  |                        |
| 1.4             | 16QAM | 1  | 5  | 13.88  | 13.89 | 13.90  |                        |
| 1.4             | 16QAM | 3  | 0  | 12.96  | 12.87 | 13.09  | 15                     |
| 1.4             | 16QAM | 3  | 1  | 12.92  | 12.90 | 12.90  |                        |
| 1.4             | 16QAM | 3  | 3  | 12.90  | 12.71 | 12.98  |                        |
| 1.4             | 16QAM | 6  | 0  | 12.84  | 12.96 | 12.80  |                        |
| 1.4             | 64QAM | 1  | 0  | 12.87  | 12.84 | 12.73  | 15                     |
| 1.4             | 64QAM | 1  | 3  | 12.70  | 12.68 | 12.74  |                        |
| 1.4             | 64QAM | 1  | 5  | 12.62  | 12.56 | 12.52  |                        |
| 1.4             | 64QAM | 3  | 0  | 12.78  | 12.76 | 12.64  | 15                     |
| 1.4             | 64QAM | 3  | 1  | 12.78  | 12.69 | 12.64  |                        |
| 1.4             | 64QAM | 3  | 3  | 12.61  | 12.66 | 12.49  |                        |
| 1.4             | 64QAM | 6  | 0  | 11.59  | 11.54 | 11.63  |                        |



**<LTE Band 4>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|
| Channel         |            |         |           | 20050                 | 20175                    | 20300                  |                     |
| Frequency (MHz) |            |         |           | 1720                  | 1732.5                   | 1745                   |                     |
| 20              | QPSK       | 1       | 0         | 14.98                 | 14.99                    | 15.00                  | 15.5                |
| 20              | QPSK       | 1       | 49        | 14.84                 | 14.82                    | 14.81                  |                     |
| 20              | QPSK       | 1       | 99        | 14.85                 | 14.85                    | 14.75                  |                     |
| 20              | QPSK       | 50      | 0         | 13.92                 | 13.99                    | 14.01                  | 15.5                |
| 20              | QPSK       | 50      | 24        | 13.90                 | 13.92                    | 13.90                  |                     |
| 20              | QPSK       | 50      | 50        | 13.90                 | 13.94                    | 13.89                  |                     |
| 20              | QPSK       | 100     | 0         | 13.91                 | 13.95                    | 13.94                  |                     |
| 20              | 16QAM      | 1       | 0         | 14.60                 | 14.51                    | 14.52                  | 15.5                |
| 20              | 16QAM      | 1       | 49        | 14.45                 | 14.44                    | 14.48                  |                     |
| 20              | 16QAM      | 1       | 99        | 14.38                 | 14.29                    | 14.40                  |                     |
| 20              | 16QAM      | 50      | 0         | 13.00                 | 12.98                    | 13.00                  | 15.5                |
| 20              | 16QAM      | 50      | 24        | 12.99                 | 12.97                    | 12.99                  |                     |
| 20              | 16QAM      | 50      | 50        | 12.94                 | 12.96                    | 12.94                  |                     |
| 20              | 16QAM      | 100     | 0         | 12.98                 | 12.99                    | 13.00                  |                     |
| 20              | 64QAM      | 1       | 0         | 13.47                 | 13.33                    | 13.41                  | 15.5                |
| 20              | 64QAM      | 1       | 49        | 13.33                 | 13.37                    | 13.42                  |                     |
| 20              | 64QAM      | 1       | 99        | 13.38                 | 13.20                    | 13.40                  |                     |
| 20              | 64QAM      | 50      | 0         | 12.47                 | 12.42                    | 12.48                  | 15.5                |
| 20              | 64QAM      | 50      | 24        | 12.43                 | 12.42                    | 12.47                  |                     |
| 20              | 64QAM      | 50      | 50        | 12.48                 | 12.45                    | 12.49                  |                     |
| 20              | 64QAM      | 100     | 0         | 12.48                 | 12.50                    | 12.46                  |                     |
| Channel         |            |         |           | 20025                 | 20175                    | 20325                  | Tune-up limit (dBm) |
| Frequency (MHz) |            |         |           | 1717.5                | 1732.5                   | 1747.5                 |                     |
| 15              | QPSK       | 1       | 0         | 14.90                 | 14.86                    | 14.97                  | 15.5                |
| 15              | QPSK       | 1       | 37        | 14.66                 | 14.79                    | 14.81                  |                     |
| 15              | QPSK       | 1       | 74        | 14.69                 | 14.70                    | 14.68                  |                     |
| 15              | QPSK       | 36      | 0         | 13.81                 | 13.88                    | 13.84                  | 15.5                |
| 15              | QPSK       | 36      | 20        | 13.83                 | 13.77                    | 13.78                  |                     |
| 15              | QPSK       | 36      | 39        | 13.83                 | 13.83                    | 13.71                  |                     |
| 15              | QPSK       | 75      | 0         | 13.74                 | 13.90                    | 13.93                  |                     |
| 15              | 16QAM      | 1       | 0         | 13.83                 | 13.82                    | 13.79                  | 15.5                |
| 15              | 16QAM      | 1       | 37        | 13.65                 | 13.77                    | 13.77                  |                     |
| 15              | 16QAM      | 1       | 74        | 13.63                 | 13.54                    | 13.63                  |                     |
| 15              | 16QAM      | 36      | 0         | 12.82                 | 12.87                    | 12.95                  | 15.5                |
| 15              | 16QAM      | 36      | 20        | 12.79                 | 12.81                    | 12.97                  |                     |
| 15              | 16QAM      | 36      | 39        | 12.87                 | 12.95                    | 12.78                  |                     |
| 15              | 16QAM      | 75      | 0         | 12.96                 | 12.96                    | 12.89                  |                     |
| 15              | 64QAM      | 1       | 0         | 13.49                 | 13.42                    | 13.32                  | 15.5                |
| 15              | 64QAM      | 1       | 37        | 13.42                 | 13.40                    | 13.45                  |                     |
| 15              | 64QAM      | 1       | 74        | 13.20                 | 13.25                    | 13.39                  |                     |
| 15              | 64QAM      | 36      | 0         | 12.42                 | 12.42                    | 12.45                  | 15.5                |
| 15              | 64QAM      | 36      | 20        | 12.41                 | 12.43                    | 12.43                  |                     |
| 15              | 64QAM      | 36      | 39        | 12.48                 | 12.48                    | 12.47                  |                     |
| 15              | 64QAM      | 75      | 0         | 12.46                 | 12.47                    | 12.47                  |                     |



| Channel         |       |    |    | 20000  | 20175  | 20350  | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1715   | 1732.5 | 1750   |                        |
| 10              | QPSK  | 1  | 0  | 14.85  | 14.80  | 14.99  | 15.5                   |
| 10              | QPSK  | 1  | 25 | 14.66  | 14.73  | 14.75  |                        |
| 10              | QPSK  | 1  | 49 | 14.71  | 14.79  | 14.66  |                        |
| 10              | QPSK  | 25 | 0  | 13.87  | 13.99  | 13.89  | 15.5                   |
| 10              | QPSK  | 25 | 12 | 13.86  | 13.88  | 13.83  |                        |
| 10              | QPSK  | 25 | 25 | 13.90  | 13.84  | 13.79  |                        |
| 10              | QPSK  | 50 | 0  | 13.72  | 13.79  | 13.78  |                        |
| 10              | 16QAM | 1  | 0  | 13.81  | 13.75  | 13.87  | 15.5                   |
| 10              | 16QAM | 1  | 25 | 13.83  | 13.76  | 13.76  |                        |
| 10              | 16QAM | 1  | 49 | 13.63  | 13.51  | 13.60  |                        |
| 10              | 16QAM | 25 | 0  | 12.90  | 12.92  | 12.99  | 15.5                   |
| 10              | 16QAM | 25 | 12 | 12.79  | 12.78  | 12.83  |                        |
| 10              | 16QAM | 25 | 25 | 12.88  | 12.81  | 12.86  |                        |
| 10              | 16QAM | 50 | 0  | 12.86  | 12.84  | 12.94  |                        |
| 10              | 64QAM | 1  | 0  | 13.50  | 13.31  | 13.49  | 15.5                   |
| 10              | 64QAM | 1  | 25 | 13.27  | 13.35  | 13.46  |                        |
| 10              | 64QAM | 1  | 49 | 13.23  | 13.19  | 13.21  |                        |
| 10              | 64QAM | 25 | 0  | 12.50  | 12.48  | 12.44  | 15.5                   |
| 10              | 64QAM | 25 | 12 | 12.46  | 12.39  | 12.46  |                        |
| 10              | 64QAM | 25 | 25 | 12.38  | 12.48  | 12.49  |                        |
| 10              | 64QAM | 50 | 0  | 12.41  | 12.42  | 12.41  |                        |
| Channel         |       |    |    | 19975  | 20175  | 20375  | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 1712.5 | 1732.5 | 1752.5 |                        |
| 5               | QPSK  | 1  | 0  | 14.97  | 14.95  | 14.91  | 15.5                   |
| 5               | QPSK  | 1  | 12 | 14.72  | 14.66  | 14.80  |                        |
| 5               | QPSK  | 1  | 24 | 14.75  | 14.72  | 14.67  |                        |
| 5               | QPSK  | 12 | 0  | 13.75  | 13.80  | 13.97  | 15.5                   |
| 5               | QPSK  | 12 | 7  | 13.81  | 13.77  | 13.70  |                        |
| 5               | QPSK  | 12 | 13 | 13.90  | 13.81  | 13.85  |                        |
| 5               | QPSK  | 25 | 0  | 13.84  | 13.91  | 13.85  |                        |
| 5               | 16QAM | 1  | 0  | 13.92  | 13.87  | 13.76  | 15.5                   |
| 5               | 16QAM | 1  | 12 | 13.80  | 13.76  | 13.75  |                        |
| 5               | 16QAM | 1  | 24 | 13.64  | 13.50  | 13.80  |                        |
| 5               | 16QAM | 12 | 0  | 12.91  | 12.78  | 13.00  | 15.5                   |
| 5               | 16QAM | 12 | 7  | 12.98  | 12.89  | 12.93  |                        |
| 5               | 16QAM | 12 | 13 | 12.92  | 12.76  | 12.94  |                        |
| 5               | 16QAM | 25 | 0  | 12.82  | 12.91  | 12.93  |                        |
| 5               | 64QAM | 1  | 0  | 13.49  | 13.34  | 13.33  | 15.5                   |
| 5               | 64QAM | 1  | 12 | 13.44  | 13.31  | 13.40  |                        |
| 5               | 64QAM | 1  | 24 | 13.18  | 13.15  | 13.20  |                        |
| 5               | 64QAM | 12 | 0  | 12.48  | 12.50  | 12.41  | 15.5                   |
| 5               | 64QAM | 12 | 7  | 12.45  | 12.46  | 12.47  |                        |
| 5               | 64QAM | 12 | 13 | 12.41  | 12.36  | 12.44  |                        |
| 5               | 64QAM | 25 | 0  | 12.49  | 12.44  | 12.42  |                        |



| Channel         |       |    |    | 19965  | 20175  | 20385  | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1711.5 | 1732.5 | 1753.5 |                        |
| 3               | QPSK  | 1  | 0  | 14.86  | 14.80  | 14.98  | 15.5                   |
| 3               | QPSK  | 1  | 8  | 14.65  | 14.65  | 14.71  |                        |
| 3               | QPSK  | 1  | 14 | 14.83  | 14.78  | 14.55  |                        |
| 3               | QPSK  | 8  | 0  | 13.88  | 13.79  | 13.96  | 15.5                   |
| 3               | QPSK  | 8  | 4  | 13.71  | 13.92  | 13.84  |                        |
| 3               | QPSK  | 8  | 7  | 13.77  | 13.76  | 13.77  |                        |
| 3               | QPSK  | 15 | 0  | 13.80  | 13.85  | 13.77  |                        |
| 3               | 16QAM | 1  | 0  | 13.81  | 13.76  | 13.75  | 15.5                   |
| 3               | 16QAM | 1  | 8  | 13.82  | 13.82  | 13.84  |                        |
| 3               | 16QAM | 1  | 14 | 13.78  | 13.64  | 13.68  |                        |
| 3               | 16QAM | 8  | 0  | 13.00  | 12.89  | 12.85  | 15.5                   |
| 3               | 16QAM | 8  | 4  | 12.89  | 12.95  | 12.86  |                        |
| 3               | 16QAM | 8  | 7  | 12.75  | 12.82  | 12.91  |                        |
| 3               | 16QAM | 15 | 0  | 12.94  | 12.86  | 12.90  |                        |
| 3               | 64QAM | 1  | 0  | 13.42  | 13.33  | 13.44  | 15.5                   |
| 3               | 64QAM | 1  | 8  | 13.35  | 13.27  | 13.38  |                        |
| 3               | 64QAM | 1  | 14 | 13.38  | 13.21  | 13.34  |                        |
| 3               | 64QAM | 8  | 0  | 12.48  | 12.41  | 12.41  | 15.5                   |
| 3               | 64QAM | 8  | 4  | 12.49  | 12.43  | 12.45  |                        |
| 3               | 64QAM | 8  | 7  | 12.38  | 12.50  | 12.50  |                        |
| 3               | 64QAM | 15 | 0  | 12.42  | 12.43  | 12.43  |                        |
| Channel         |       |    |    | 19957  | 20175  | 20393  | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 1710.7 | 1732.5 | 1754.3 |                        |
| 1.4             | QPSK  | 1  | 0  | 14.98  | 14.86  | 14.97  | 15.5                   |
| 1.4             | QPSK  | 1  | 3  | 14.68  | 14.62  | 14.70  |                        |
| 1.4             | QPSK  | 1  | 5  | 14.72  | 14.69  | 14.65  |                        |
| 1.4             | QPSK  | 3  | 0  | 13.78  | 13.82  | 13.81  | 15.5                   |
| 1.4             | QPSK  | 3  | 1  | 13.80  | 13.83  | 13.78  |                        |
| 1.4             | QPSK  | 3  | 3  | 13.73  | 13.85  | 13.72  |                        |
| 1.4             | QPSK  | 6  | 0  | 13.84  | 13.82  | 13.81  |                        |
| 1.4             | 16QAM | 1  | 0  | 13.96  | 13.87  | 13.80  | 15.5                   |
| 1.4             | 16QAM | 1  | 3  | 13.74  | 13.73  | 13.80  |                        |
| 1.4             | 16QAM | 1  | 5  | 13.68  | 13.63  | 13.72  |                        |
| 1.4             | 16QAM | 3  | 0  | 12.84  | 12.87  | 12.90  | 15.5                   |
| 1.4             | 16QAM | 3  | 1  | 12.97  | 12.86  | 12.81  |                        |
| 1.4             | 16QAM | 3  | 3  | 12.82  | 12.83  | 12.82  |                        |
| 1.4             | 16QAM | 6  | 0  | 12.94  | 12.96  | 13.00  |                        |
| 1.4             | 64QAM | 1  | 0  | 13.48  | 13.49  | 13.48  | 15.5                   |
| 1.4             | 64QAM | 1  | 3  | 13.42  | 13.31  | 13.36  |                        |
| 1.4             | 64QAM | 1  | 5  | 13.35  | 13.21  | 13.31  |                        |
| 1.4             | 64QAM | 3  | 0  | 13.40  | 13.44  | 13.45  | 15.5                   |
| 1.4             | 64QAM | 3  | 1  | 13.46  | 13.29  | 13.45  |                        |
| 1.4             | 64QAM | 3  | 3  | 13.44  | 13.30  | 13.40  |                        |
| 1.4             | 64QAM | 6  | 0  | 12.46  | 12.42  | 12.42  |                        |



**<LTE Band 5>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|
| Channel         |            |         |           | 20450                 | 20525                    | 20600                  |                     |
| Frequency (MHz) |            |         |           | 829                   | 836.5                    | 844                    |                     |
| 10              | QPSK       | 1       | 0         | 23.81                 | 23.56                    | 23.40                  | 24                  |
| 10              | QPSK       | 1       | 25        | 23.39                 | 23.54                    | 23.54                  |                     |
| 10              | QPSK       | 1       | 49        | 23.50                 | 23.41                    | 23.42                  |                     |
| 10              | QPSK       | 25      | 0         | 22.62                 | 22.62                    | 22.61                  | 23                  |
| 10              | QPSK       | 25      | 12        | 22.60                 | 22.58                    | 22.58                  |                     |
| 10              | QPSK       | 25      | 25        | 22.52                 | 22.50                    | 22.52                  |                     |
| 10              | QPSK       | 50      | 0         | 22.58                 | 22.55                    | 22.57                  |                     |
| 10              | 16QAM      | 1       | 0         | 22.75                 | 22.83                    | 22.64                  | 23                  |
| 10              | 16QAM      | 1       | 25        | 22.68                 | 22.64                    | 22.74                  |                     |
| 10              | 16QAM      | 1       | 49        | 22.61                 | 22.58                    | 22.72                  |                     |
| 10              | 16QAM      | 25      | 0         | 21.62                 | 21.66                    | 21.60                  | 22                  |
| 10              | 16QAM      | 25      | 12        | 21.60                 | 21.60                    | 21.59                  |                     |
| 10              | 16QAM      | 25      | 25        | 21.55                 | 21.47                    | 21.53                  |                     |
| 10              | 16QAM      | 50      | 0         | 21.60                 | 21.56                    | 21.58                  |                     |
| 10              | 64QAM      | 1       | 0         | 21.56                 | 21.63                    | 21.57                  | 22                  |
| 10              | 64QAM      | 1       | 25        | 21.43                 | 21.60                    | 21.47                  |                     |
| 10              | 64QAM      | 1       | 49        | 21.33                 | 21.53                    | 21.46                  |                     |
| 10              | 64QAM      | 25      | 0         | 20.33                 | 20.39                    | 20.36                  | 21                  |
| 10              | 64QAM      | 25      | 12        | 20.16                 | 20.28                    | 20.12                  |                     |
| 10              | 64QAM      | 25      | 25        | 20.36                 | 20.36                    | 20.33                  |                     |
| 10              | 64QAM      | 50      | 0         | 20.25                 | 20.36                    | 20.34                  |                     |
| Channel         |            |         |           | 20425                 | 20525                    | 20625                  | Tune-up limit (dBm) |
| Frequency (MHz) |            |         |           | 826.5                 | 836.5                    | 846.5                  |                     |
| 5               | QPSK       | 1       | 0         | 23.32                 | 22.51                    | 22.88                  | 24                  |
| 5               | QPSK       | 1       | 12        | 23.30                 | 23.54                    | 22.28                  |                     |
| 5               | QPSK       | 1       | 24        | 23.54                 | 23.43                    | 23.21                  |                     |
| 5               | QPSK       | 12      | 0         | 22.53                 | 22.54                    | 22.54                  | 23                  |
| 5               | QPSK       | 12      | 7         | 22.69                 | 22.52                    | 22.55                  |                     |
| 5               | QPSK       | 12      | 13        | 22.59                 | 22.53                    | 22.48                  |                     |
| 5               | QPSK       | 25      | 0         | 22.59                 | 22.57                    | 22.60                  |                     |
| 5               | 16QAM      | 1       | 0         | 22.34                 | 22.59                    | 22.99                  | 23                  |
| 5               | 16QAM      | 1       | 12        | 22.99                 | 22.34                    | 21.47                  |                     |
| 5               | 16QAM      | 1       | 24        | 22.40                 | 22.57                    | 21.44                  |                     |
| 5               | 16QAM      | 12      | 0         | 21.57                 | 21.46                    | 21.65                  | 22                  |
| 5               | 16QAM      | 12      | 7         | 21.63                 | 21.63                    | 21.70                  |                     |
| 5               | 16QAM      | 12      | 13        | 21.52                 | 21.52                    | 21.50                  |                     |
| 5               | 16QAM      | 25      | 0         | 21.59                 | 21.50                    | 21.59                  |                     |
| 5               | 64QAM      | 1       | 0         | 21.28                 | 21.36                    | 21.25                  | 22                  |
| 5               | 64QAM      | 1       | 12        | 21.31                 | 21.41                    | 21.35                  |                     |
| 5               | 64QAM      | 1       | 24        | 21.26                 | 21.33                    | 21.31                  |                     |
| 5               | 64QAM      | 12      | 0         | 20.24                 | 20.39                    | 20.21                  | 21                  |
| 5               | 64QAM      | 12      | 7         | 20.24                 | 20.41                    | 20.29                  |                     |
| 5               | 64QAM      | 12      | 13        | 20.37                 | 20.39                    | 20.19                  |                     |
| 5               | 64QAM      | 25      | 0         | 20.34                 | 20.47                    | 20.30                  |                     |



| Channel         |       |    |    | 20415 | 20525 | 20635 | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|-------|-------|-------|------------------------|
| Frequency (MHz) |       |    |    | 825.5 | 836.5 | 847.5 |                        |
| 3               | QPSK  | 1  | 0  | 23.37 | 23.23 | 23.80 | 24                     |
| 3               | QPSK  | 1  | 8  | 22.72 | 23.27 | 23.64 |                        |
| 3               | QPSK  | 1  | 14 | 23.09 | 22.69 | 23.29 |                        |
| 3               | QPSK  | 8  | 0  | 22.99 | 22.60 | 22.63 | 23                     |
| 3               | QPSK  | 8  | 4  | 22.45 | 22.69 | 22.35 |                        |
| 3               | QPSK  | 8  | 7  | 22.51 | 22.68 | 22.61 |                        |
| 3               | QPSK  | 15 | 0  | 22.57 | 22.55 | 22.60 | 23                     |
| 3               | 16QAM | 1  | 0  | 21.95 | 22.35 | 22.51 |                        |
| 3               | 16QAM | 1  | 8  | 21.62 | 22.41 | 22.83 |                        |
| 3               | 16QAM | 1  | 14 | 21.81 | 22.26 | 22.73 | 22                     |
| 3               | 16QAM | 8  | 0  | 21.62 | 21.68 | 21.80 |                        |
| 3               | 16QAM | 8  | 4  | 21.61 | 21.57 | 21.70 |                        |
| 3               | 16QAM | 8  | 7  | 21.54 | 21.39 | 21.76 | 22                     |
| 3               | 16QAM | 15 | 0  | 21.63 | 21.66 | 21.82 |                        |
| 3               | 64QAM | 1  | 0  | 21.22 | 21.41 | 21.30 | 22                     |
| 3               | 64QAM | 1  | 8  | 21.20 | 21.40 | 21.27 |                        |
| 3               | 64QAM | 1  | 14 | 21.30 | 21.41 | 21.28 |                        |
| 3               | 64QAM | 8  | 0  | 20.12 | 20.25 | 20.13 | 21                     |
| 3               | 64QAM | 8  | 4  | 20.09 | 20.23 | 20.16 |                        |
| 3               | 64QAM | 8  | 7  | 20.13 | 20.31 | 20.30 |                        |
| 3               | 64QAM | 15 | 0  | 20.20 | 20.34 | 20.19 |                        |
| Channel         |       |    |    | 20407 | 20525 | 20643 | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 824.7 | 836.5 | 848.3 |                        |
| 1.4             | QPSK  | 1  | 0  | 22.45 | 23.31 | 23.39 | 24                     |
| 1.4             | QPSK  | 1  | 3  | 22.61 | 23.64 | 23.73 |                        |
| 1.4             | QPSK  | 1  | 5  | 22.82 | 23.32 | 22.22 |                        |
| 1.4             | QPSK  | 3  | 0  | 23.30 | 23.29 | 23.34 | 23                     |
| 1.4             | QPSK  | 3  | 1  | 23.77 | 23.53 | 23.48 |                        |
| 1.4             | QPSK  | 3  | 3  | 23.35 | 23.30 | 23.44 |                        |
| 1.4             | QPSK  | 6  | 0  | 22.19 | 22.31 | 22.40 | 23                     |
| 1.4             | 16QAM | 1  | 0  | 21.80 | 22.53 | 21.89 |                        |
| 1.4             | 16QAM | 1  | 3  | 21.52 | 22.68 | 22.62 |                        |
| 1.4             | 16QAM | 1  | 5  | 22.41 | 22.67 | 22.49 | 22                     |
| 1.4             | 16QAM | 3  | 0  | 22.01 | 21.76 | 22.32 |                        |
| 1.4             | 16QAM | 3  | 1  | 22.58 | 22.43 | 21.96 |                        |
| 1.4             | 16QAM | 3  | 3  | 22.08 | 22.02 | 22.55 | 22                     |
| 1.4             | 16QAM | 6  | 0  | 21.37 | 21.44 | 21.48 |                        |
| 1.4             | 64QAM | 1  | 0  | 21.09 | 21.25 | 21.20 |                        |
| 1.4             | 64QAM | 1  | 3  | 21.06 | 21.19 | 21.09 | 22                     |
| 1.4             | 64QAM | 1  | 5  | 21.06 | 21.26 | 21.16 |                        |
| 1.4             | 64QAM | 3  | 0  | 20.95 | 21.10 | 20.96 |                        |
| 1.4             | 64QAM | 3  | 1  | 21.13 | 21.15 | 21.15 | 21                     |
| 1.4             | 64QAM | 3  | 3  | 21.01 | 21.03 | 20.92 |                        |
| 1.4             | 64QAM | 6  | 0  | 20.05 | 20.12 | 20.01 |                        |



**<LTE Band 13>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|
| Channel         |            |         |           | 23230                    |                             |                           |                        |
| Frequency (MHz) |            |         |           | 782                      |                             |                           |                        |
| 10              | QPSK       | 1       | 0         |                          | 23.49                       |                           | 24                     |
| 10              | QPSK       | 1       | 25        |                          | 23.32                       |                           |                        |
| 10              | QPSK       | 1       | 49        |                          | 23.31                       |                           |                        |
| 10              | QPSK       | 25      | 0         |                          | 22.61                       |                           | 23                     |
| 10              | QPSK       | 25      | 12        |                          | 22.57                       |                           |                        |
| 10              | QPSK       | 25      | 25        |                          | 22.48                       |                           |                        |
| 10              | QPSK       | 50      | 0         |                          | 22.52                       |                           |                        |
| 10              | 16QAM      | 1       | 0         |                          | 22.72                       |                           | 23                     |
| 10              | 16QAM      | 1       | 25        |                          | 22.69                       |                           |                        |
| 10              | 16QAM      | 1       | 49        |                          | 22.50                       |                           |                        |
| 10              | 16QAM      | 25      | 0         |                          | 21.62                       |                           | 22                     |
| 10              | 16QAM      | 25      | 12        |                          | 21.58                       |                           |                        |
| 10              | 16QAM      | 25      | 25        |                          | 21.51                       |                           |                        |
| 10              | 16QAM      | 50      | 0         |                          | 21.52                       |                           |                        |
| 10              | 64QAM      | 1       | 0         |                          | 21.63                       |                           |                        |
| 10              | 64QAM      | 1       | 25        |                          | 21.61                       |                           | 22                     |
| 10              | 64QAM      | 1       | 49        |                          | 21.59                       |                           |                        |
| 10              | 64QAM      | 25      | 0         |                          | 20.51                       |                           | 21                     |
| 10              | 64QAM      | 25      | 12        |                          | 20.38                       |                           |                        |
| 10              | 64QAM      | 25      | 25        |                          | 20.39                       |                           |                        |
| 10              | 64QAM      | 50      | 0         |                          | 20.46                       |                           |                        |
| Channel         |            |         |           | 23205                    | 23230                       | 23255                     | Tune-up limit<br>(dBm) |
| Frequency (MHz) |            |         |           | 779.5                    | 782                         | 784.5                     |                        |
| 5               | QPSK       | 1       | 0         | 23.47                    | 23.09                       | 23.38                     | 24                     |
| 5               | QPSK       | 1       | 12        | 22.79                    | 22.98                       | 23.38                     |                        |
| 5               | QPSK       | 1       | 24        | 23.48                    | 23.11                       | 23.03                     |                        |
| 5               | QPSK       | 12      | 0         | 22.54                    | 22.56                       | 22.56                     | 23                     |
| 5               | QPSK       | 12      | 7         | 22.58                    | 22.49                       | 22.53                     |                        |
| 5               | QPSK       | 12      | 13        | 22.51                    | 22.47                       | 22.47                     |                        |
| 5               | QPSK       | 25      | 0         | 22.53                    | 22.55                       | 22.55                     | 23                     |
| 5               | 16QAM      | 1       | 0         | 22.74                    | 21.96                       | 22.99                     |                        |
| 5               | 16QAM      | 1       | 12        | 22.99                    | 22.37                       | 22.96                     |                        |
| 5               | 16QAM      | 1       | 24        | 22.50                    | 22.13                       | 22.09                     |                        |
| 5               | 16QAM      | 12      | 0         | 21.54                    | 21.57                       | 21.56                     | 22                     |
| 5               | 16QAM      | 12      | 7         | 21.50                    | 21.68                       | 21.54                     |                        |
| 5               | 16QAM      | 12      | 13        | 21.48                    | 21.54                       | 21.40                     |                        |
| 5               | 16QAM      | 25      | 0         | 21.49                    | 21.57                       | 21.54                     |                        |
| 5               | 64QAM      | 1       | 0         | 21.48                    | 21.54                       | 21.49                     |                        |
| 5               | 64QAM      | 1       | 12        | 21.61                    | 21.42                       | 21.59                     | 22                     |
| 5               | 64QAM      | 1       | 24        | 21.45                    | 21.40                       | 21.44                     |                        |
| 5               | 64QAM      | 12      | 0         | 20.50                    | 20.49                       | 20.39                     |                        |
| 5               | 64QAM      | 12      | 7         | 20.27                    | 20.37                       | 20.29                     | 21                     |
| 5               | 64QAM      | 12      | 13        | 20.27                    | 20.25                       | 20.24                     |                        |
| 5               | 64QAM      | 25      | 0         | 20.41                    | 20.31                       | 20.36                     |                        |

**<LTE Band 66>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|
| Channel         |            |         |           | 132072                   | 132322                      | 132572                    |                        |
| Frequency (MHz) |            |         |           | 1720                     | 1745                        | 1770                      |                        |
| 20              | QPSK       | 1       | 0         | 15.69                    | 15.73                       | 15.55                     | 16                     |
| 20              | QPSK       | 1       | 49        | 15.47                    | 15.53                       | 15.44                     |                        |
| 20              | QPSK       | 1       | 99        | 15.58                    | 15.51                       | 15.44                     |                        |
| 20              | QPSK       | 50      | 0         | 15.19                    | 15.23                       | 15.08                     | 16                     |
| 20              | QPSK       | 50      | 24        | 15.13                    | 15.17                       | 15.07                     |                        |
| 20              | QPSK       | 50      | 50        | 15.07                    | 15.12                       | 15.00                     |                        |
| 20              | QPSK       | 100     | 0         | 15.09                    | 15.18                       | 15.08                     | 16                     |
| 20              | 16QAM      | 1       | 0         | 15.00                    | 15.00                       | 14.93                     |                        |
| 20              | 16QAM      | 1       | 49        | 14.86                    | 14.99                       | 14.84                     |                        |
| 20              | 16QAM      | 1       | 99        | 15.00                    | 14.99                       | 14.83                     | 16                     |
| 20              | 16QAM      | 50      | 0         | 13.75                    | 13.81                       | 13.68                     |                        |
| 20              | 16QAM      | 50      | 24        | 13.72                    | 13.72                       | 13.64                     |                        |
| 20              | 16QAM      | 50      | 50        | 13.63                    | 13.67                       | 13.53                     | 16                     |
| 20              | 16QAM      | 100     | 0         | 13.69                    | 13.69                       | 13.64                     |                        |
| 20              | 64QAM      | 1       | 0         | 13.91                    | 13.98                       | 14.00                     | 16                     |
| 20              | 64QAM      | 1       | 49        | 13.96                    | 13.95                       | 13.90                     |                        |
| 20              | 64QAM      | 1       | 99        | 14.00                    | 13.93                       | 13.86                     |                        |
| 20              | 64QAM      | 50      | 0         | 12.66                    | 12.83                       | 12.63                     | 16                     |
| 20              | 64QAM      | 50      | 24        | 12.65                    | 12.72                       | 12.66                     |                        |
| 20              | 64QAM      | 50      | 50        | 12.60                    | 12.65                       | 12.53                     |                        |
| 20              | 64QAM      | 100     | 0         | 12.70                    | 12.72                       | 12.71                     |                        |
| Channel         |            |         |           | 132047                   | 132322                      | 132597                    | Tune-up limit<br>(dBm) |
| Frequency (MHz) |            |         |           | 1717.5                   | 1745                        | 1772.5                    |                        |
| 15              | QPSK       | 1       | 0         | 15.64                    | 15.69                       | 15.37                     | 16                     |
| 15              | QPSK       | 1       | 37        | 15.44                    | 15.39                       | 15.32                     |                        |
| 15              | QPSK       | 1       | 74        | 15.45                    | 15.42                       | 15.33                     |                        |
| 15              | QPSK       | 36      | 0         | 14.54                    | 14.62                       | 14.54                     | 16                     |
| 15              | QPSK       | 36      | 20        | 14.45                    | 14.51                       | 14.51                     |                        |
| 15              | QPSK       | 36      | 39        | 14.41                    | 14.59                       | 14.32                     |                        |
| 15              | QPSK       | 75      | 0         | 14.43                    | 14.48                       | 14.40                     | 16                     |
| 15              | 16QAM      | 1       | 0         | 14.99                    | 14.93                       | 14.86                     |                        |
| 15              | 16QAM      | 1       | 37        | 14.80                    | 14.79                       | 14.64                     |                        |
| 15              | 16QAM      | 1       | 74        | 14.93                    | 14.91                       | 14.70                     | 16                     |
| 15              | 16QAM      | 36      | 0         | 13.57                    | 13.77                       | 13.61                     |                        |
| 15              | 16QAM      | 36      | 20        | 13.63                    | 13.62                       | 13.55                     |                        |
| 15              | 16QAM      | 36      | 39        | 13.62                    | 13.51                       | 13.50                     | 16                     |
| 15              | 16QAM      | 75      | 0         | 13.64                    | 13.59                       | 13.60                     |                        |
| 15              | 64QAM      | 1       | 0         | 14.00                    | 13.91                       | 13.96                     | 16                     |
| 15              | 64QAM      | 1       | 37        | 13.79                    | 13.96                       | 13.87                     |                        |
| 15              | 64QAM      | 1       | 74        | 13.97                    | 13.91                       | 13.73                     |                        |
| 15              | 64QAM      | 36      | 0         | 12.79                    | 12.83                       | 12.60                     | 16                     |
| 15              | 64QAM      | 36      | 20        | 12.77                    | 12.80                       | 12.69                     |                        |
| 15              | 64QAM      | 36      | 39        | 12.66                    | 12.71                       | 12.58                     |                        |
| 15              | 64QAM      | 75      | 0         | 12.70                    | 12.71                       | 12.67                     |                        |



| Channel         |       |    |    | 132022 | 132322 | 132622 | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1715   | 1745   | 1775   |                        |
| 10              | QPSK  | 1  | 0  | 15.67  | 15.62  | 15.51  | 16                     |
| 10              | QPSK  | 1  | 25 | 15.37  | 15.36  | 15.26  |                        |
| 10              | QPSK  | 1  | 49 | 15.53  | 15.43  | 15.32  |                        |
| 10              | QPSK  | 25 | 0  | 14.49  | 14.71  | 14.51  | 16                     |
| 10              | QPSK  | 25 | 12 | 14.58  | 14.56  | 14.56  |                        |
| 10              | QPSK  | 25 | 25 | 14.57  | 14.57  | 14.40  |                        |
| 10              | QPSK  | 50 | 0  | 14.51  | 14.48  | 14.45  | 16                     |
| 10              | 16QAM | 1  | 0  | 14.87  | 14.86  | 14.73  |                        |
| 10              | 16QAM | 1  | 25 | 14.66  | 14.97  | 14.77  |                        |
| 10              | 16QAM | 1  | 49 | 14.85  | 14.99  | 14.74  | 16                     |
| 10              | 16QAM | 25 | 0  | 13.70  | 13.64  | 13.61  |                        |
| 10              | 16QAM | 25 | 12 | 13.65  | 13.63  | 13.48  |                        |
| 10              | 16QAM | 25 | 25 | 13.63  | 13.63  | 13.36  | 16                     |
| 10              | 16QAM | 50 | 0  | 13.49  | 13.55  | 13.52  |                        |
| 10              | 64QAM | 1  | 0  | 13.91  | 13.92  | 13.90  | 16                     |
| 10              | 64QAM | 1  | 25 | 13.91  | 13.94  | 13.92  |                        |
| 10              | 64QAM | 1  | 49 | 13.95  | 13.93  | 13.77  |                        |
| 10              | 64QAM | 25 | 0  | 12.69  | 12.90  | 12.68  | 16                     |
| 10              | 64QAM | 25 | 12 | 12.66  | 12.77  | 12.62  |                        |
| 10              | 64QAM | 25 | 25 | 12.53  | 12.66  | 12.59  |                        |
| 10              | 64QAM | 50 | 0  | 12.59  | 12.66  | 12.63  | 16                     |
| Channel         |       |    |    | 131997 | 132322 | 132647 |                        |
| Frequency (MHz) |       |    |    | 1712.5 | 1745   | 1777.5 | Tune-up limit<br>(dBm) |
| 5               | QPSK  | 1  | 0  | 15.59  | 15.69  | 15.50  | 16                     |
| 5               | QPSK  | 1  | 12 | 15.30  | 15.52  | 15.38  |                        |
| 5               | QPSK  | 1  | 24 | 15.39  | 15.32  | 15.27  |                        |
| 5               | QPSK  | 12 | 0  | 14.51  | 14.53  | 14.43  | 16                     |
| 5               | QPSK  | 12 | 7  | 14.57  | 14.64  | 14.39  |                        |
| 5               | QPSK  | 12 | 13 | 14.51  | 14.46  | 14.36  |                        |
| 5               | QPSK  | 25 | 0  | 14.48  | 14.51  | 14.46  | 16                     |
| 5               | 16QAM | 1  | 0  | 14.86  | 14.84  | 14.90  |                        |
| 5               | 16QAM | 1  | 12 | 14.73  | 14.84  | 14.84  |                        |
| 5               | 16QAM | 1  | 24 | 14.98  | 14.94  | 14.63  | 16                     |
| 5               | 16QAM | 12 | 0  | 13.63  | 13.81  | 13.50  |                        |
| 5               | 16QAM | 12 | 7  | 13.66  | 13.64  | 13.44  |                        |
| 5               | 16QAM | 12 | 13 | 13.56  | 13.63  | 13.42  | 16                     |
| 5               | 16QAM | 25 | 0  | 13.66  | 13.62  | 13.49  |                        |
| 5               | 64QAM | 1  | 0  | 13.99  | 13.99  | 13.97  |                        |
| 5               | 64QAM | 1  | 12 | 13.88  | 13.92  | 13.85  | 16                     |
| 5               | 64QAM | 1  | 24 | 13.98  | 13.95  | 13.76  |                        |
| 5               | 64QAM | 12 | 0  | 12.67  | 12.77  | 12.59  |                        |
| 5               | 64QAM | 12 | 7  | 12.82  | 12.76  | 12.55  | 16                     |
| 5               | 64QAM | 12 | 13 | 12.69  | 12.75  | 12.63  |                        |
| 5               | 64QAM | 25 | 0  | 12.72  | 12.62  | 12.54  |                        |



| Channel         |       |    |    | 131987 | 132322 | 132657 | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1711.5 | 1745   | 1778.5 |                        |
| 3               | QPSK  | 1  | 0  | 15.57  | 15.69  | 15.45  | 16                     |
| 3               | QPSK  | 1  | 8  | 15.28  | 15.50  | 15.39  |                        |
| 3               | QPSK  | 1  | 14 | 15.49  | 15.37  | 15.39  |                        |
| 3               | QPSK  | 8  | 0  | 14.65  | 14.65  | 14.51  | 16                     |
| 3               | QPSK  | 8  | 4  | 14.53  | 14.53  | 14.53  |                        |
| 3               | QPSK  | 8  | 7  | 14.37  | 14.55  | 14.41  |                        |
| 3               | QPSK  | 15 | 0  | 14.48  | 14.63  | 14.52  |                        |
| 3               | 16QAM | 1  | 0  | 14.86  | 14.86  | 14.76  | 16                     |
| 3               | 16QAM | 1  | 8  | 14.75  | 14.89  | 14.66  |                        |
| 3               | 16QAM | 1  | 14 | 14.93  | 14.87  | 14.71  |                        |
| 3               | 16QAM | 8  | 0  | 13.71  | 13.61  | 13.49  | 16                     |
| 3               | 16QAM | 8  | 4  | 13.56  | 13.55  | 13.46  |                        |
| 3               | 16QAM | 8  | 7  | 13.43  | 13.62  | 13.48  |                        |
| 3               | 16QAM | 15 | 0  | 13.58  | 13.68  | 13.53  |                        |
| 3               | 64QAM | 1  | 0  | 13.91  | 14.00  | 13.86  | 16                     |
| 3               | 64QAM | 1  | 8  | 13.91  | 13.91  | 13.92  |                        |
| 3               | 64QAM | 1  | 14 | 13.95  | 13.98  | 13.91  |                        |
| 3               | 64QAM | 8  | 0  | 12.74  | 12.82  | 12.63  | 16                     |
| 3               | 64QAM | 8  | 4  | 12.82  | 12.62  | 12.73  |                        |
| 3               | 64QAM | 8  | 7  | 12.58  | 12.67  | 12.57  |                        |
| 3               | 64QAM | 15 | 0  | 12.66  | 12.63  | 12.69  |                        |
| Channel         |       |    |    | 131979 | 132322 | 132665 | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 1710.7 | 1745   | 1779.3 |                        |
| 1.4             | QPSK  | 1  | 0  | 15.49  | 15.63  | 15.38  | 16                     |
| 1.4             | QPSK  | 1  | 3  | 15.46  | 15.41  | 15.27  |                        |
| 1.4             | QPSK  | 1  | 5  | 15.38  | 15.42  | 15.34  |                        |
| 1.4             | QPSK  | 3  | 0  | 14.67  | 14.69  | 14.47  | 16                     |
| 1.4             | QPSK  | 3  | 1  | 14.48  | 14.48  | 14.38  |                        |
| 1.4             | QPSK  | 3  | 3  | 14.44  | 14.49  | 14.30  |                        |
| 1.4             | QPSK  | 6  | 0  | 14.47  | 14.49  | 14.51  |                        |
| 1.4             | 16QAM | 1  | 0  | 14.98  | 14.80  | 14.84  | 16                     |
| 1.4             | 16QAM | 1  | 3  | 14.83  | 14.99  | 14.65  |                        |
| 1.4             | 16QAM | 1  | 5  | 14.86  | 14.96  | 14.64  |                        |
| 1.4             | 16QAM | 3  | 0  | 13.56  | 13.71  | 13.49  | 16                     |
| 1.4             | 16QAM | 3  | 1  | 13.58  | 13.55  | 13.62  |                        |
| 1.4             | 16QAM | 3  | 3  | 13.59  | 13.51  | 13.50  |                        |
| 1.4             | 16QAM | 6  | 0  | 13.65  | 13.52  | 13.64  |                        |
| 1.4             | 64QAM | 1  | 0  | 13.98  | 13.95  | 13.89  | 16                     |
| 1.4             | 64QAM | 1  | 3  | 13.82  | 14.00  | 13.87  |                        |
| 1.4             | 64QAM | 1  | 5  | 13.92  | 14.00  | 13.82  |                        |
| 1.4             | 64QAM | 3  | 0  | 13.93  | 13.90  | 13.80  | 16                     |
| 1.4             | 64QAM | 3  | 1  | 13.76  | 14.00  | 13.82  |                        |
| 1.4             | 64QAM | 3  | 3  | 13.85  | 13.96  | 13.83  |                        |
| 1.4             | 64QAM | 6  | 0  | 12.70  | 12.71  | 12.58  |                        |



**Simultaneous transmission mode- Phone WWAN Tx ON:  
(Head / Hotspot / Body-worn / Product Specific Power mode)**

**<LTE Band 2>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|
| Channel         |            |         |           | 18700                    | 18900                       | 19100                     |                        |
| Frequency (MHz) |            |         |           | 1860                     | 1880                        | 1900                      |                        |
| 20              | QPSK       | 1       | 0         | 14.97                    | 14.87                       | 14.88                     | 15                     |
| 20              | QPSK       | 1       | 49        | 14.89                    | 14.71                       | 14.82                     |                        |
| 20              | QPSK       | 1       | 99        | 14.86                    | 14.65                       | 14.79                     |                        |
| 20              | QPSK       | 50      | 0         | 14.49                    | 14.42                       | 14.45                     | 15                     |
| 20              | QPSK       | 50      | 24        | 14.45                    | 14.43                       | 14.41                     |                        |
| 20              | QPSK       | 50      | 50        | 14.40                    | 14.35                       | 14.37                     |                        |
| 20              | QPSK       | 100     | 0         | 14.48                    | 14.42                       | 14.46                     |                        |
| 20              | 16QAM      | 1       | 0         | 13.98                    | 13.99                       | 13.97                     | 15                     |
| 20              | 16QAM      | 1       | 49        | 13.88                    | 13.97                       | 13.88                     |                        |
| 20              | 16QAM      | 1       | 99        | 13.83                    | 13.95                       | 13.88                     |                        |
| 20              | 16QAM      | 50      | 0         | 12.93                    | 12.87                       | 12.91                     | 15                     |
| 20              | 16QAM      | 50      | 24        | 12.87                    | 12.84                       | 12.88                     |                        |
| 20              | 16QAM      | 50      | 50        | 12.91                    | 12.81                       | 12.90                     |                        |
| 20              | 16QAM      | 100     | 0         | 12.84                    | 12.88                       | 12.86                     |                        |
| 20              | 64QAM      | 1       | 0         | 12.83                    | 12.77                       | 12.81                     |                        |
| 20              | 64QAM      | 1       | 49        | 12.74                    | 12.64                       | 12.69                     | 15                     |
| 20              | 64QAM      | 1       | 99        | 12.68                    | 12.52                       | 12.62                     |                        |
| 20              | 64QAM      | 50      | 0         | 11.69                    | 11.63                       | 11.65                     | 15                     |
| 20              | 64QAM      | 50      | 24        | 11.62                    | 11.58                       | 11.59                     |                        |
| 20              | 64QAM      | 50      | 50        | 11.60                    | 11.55                       | 11.57                     |                        |
| 20              | 64QAM      | 100     | 0         | 11.64                    | 11.58                       | 11.65                     |                        |
| Channel         |            |         |           | 18675                    | 18900                       | 19125                     | Tune-up limit<br>(dBm) |
| Frequency (MHz) |            |         |           | 1857.5                   | 1880                        | 1902.5                    |                        |
| 15              | QPSK       | 1       | 0         | 14.86                    | 14.83                       | 14.85                     | 15                     |
| 15              | QPSK       | 1       | 37        | 14.82                    | 14.59                       | 14.64                     |                        |
| 15              | QPSK       | 1       | 74        | 14.74                    | 14.54                       | 14.73                     |                        |
| 15              | QPSK       | 36      | 0         | 13.99                    | 13.86                       | 13.91                     | 15                     |
| 15              | QPSK       | 36      | 20        | 13.93                    | 13.74                       | 13.76                     |                        |
| 15              | QPSK       | 36      | 39        | 13.84                    | 13.74                       | 13.70                     |                        |
| 15              | QPSK       | 75      | 0         | 13.80                    | 13.83                       | 13.88                     |                        |
| 15              | 16QAM      | 1       | 0         | 13.89                    | 13.97                       | 13.98                     | 15                     |
| 15              | 16QAM      | 1       | 37        | 13.85                    | 13.76                       | 13.83                     |                        |
| 15              | 16QAM      | 1       | 74        | 13.79                    | 13.54                       | 13.90                     |                        |
| 15              | 16QAM      | 36      | 0         | 12.91                    | 13.00                       | 12.99                     | 15                     |
| 15              | 16QAM      | 36      | 20        | 12.96                    | 12.76                       | 12.87                     |                        |
| 15              | 16QAM      | 36      | 39        | 12.97                    | 12.79                       | 12.95                     |                        |
| 15              | 16QAM      | 75      | 0         | 12.99                    | 12.80                       | 12.88                     |                        |
| 15              | 64QAM      | 1       | 0         | 12.78                    | 12.83                       | 12.72                     | 15                     |
| 15              | 64QAM      | 1       | 37        | 12.72                    | 12.70                       | 12.74                     |                        |
| 15              | 64QAM      | 1       | 74        | 12.61                    | 12.46                       | 12.61                     |                        |
| 15              | 64QAM      | 36      | 0         | 11.69                    | 11.59                       | 11.58                     | 15                     |
| 15              | 64QAM      | 36      | 20        | 11.72                    | 11.65                       | 11.58                     |                        |
| 15              | 64QAM      | 36      | 39        | 11.64                    | 11.51                       | 11.67                     |                        |
| 15              | 64QAM      | 75      | 0         | 11.62                    | 11.56                       | 11.71                     |                        |



| Channel         |       |    |    | 18650  | 18900 | 19150  | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1855   | 1880  | 1905   |                        |
| 10              | QPSK  | 1  | 0  | 14.48  | 14.44 | 14.32  | 15                     |
| 10              | QPSK  | 1  | 25 | 14.35  | 14.19 | 14.42  |                        |
| 10              | QPSK  | 1  | 49 | 14.29  | 14.09 | 14.27  |                        |
| 10              | QPSK  | 25 | 0  | 13.70  | 13.56 | 13.45  | 15                     |
| 10              | QPSK  | 25 | 12 | 13.43  | 13.36 | 13.57  |                        |
| 10              | QPSK  | 25 | 25 | 13.54  | 13.37 | 13.48  |                        |
| 10              | QPSK  | 50 | 0  | 13.41  | 13.42 | 13.50  |                        |
| 10              | 16QAM | 1  | 0  | 13.72  | 13.76 | 13.61  | 15                     |
| 10              | 16QAM | 1  | 25 | 13.71  | 13.54 | 13.46  |                        |
| 10              | 16QAM | 1  | 49 | 13.56  | 13.51 | 13.55  |                        |
| 10              | 16QAM | 25 | 0  | 12.56  | 12.48 | 12.72  | 15                     |
| 10              | 16QAM | 25 | 12 | 12.65  | 12.42 | 12.65  |                        |
| 10              | 16QAM | 25 | 25 | 12.45  | 12.50 | 12.39  |                        |
| 10              | 16QAM | 50 | 0  | 12.46  | 12.57 | 12.59  |                        |
| 10              | 64QAM | 1  | 0  | 12.90  | 12.73 | 12.86  | 15                     |
| 10              | 64QAM | 1  | 25 | 12.80  | 12.69 | 12.61  |                        |
| 10              | 64QAM | 1  | 49 | 12.75  | 12.60 | 12.68  |                        |
| 10              | 64QAM | 25 | 0  | 11.69  | 11.60 | 11.75  | 15                     |
| 10              | 64QAM | 25 | 12 | 11.65  | 11.52 | 11.61  |                        |
| 10              | 64QAM | 25 | 25 | 11.63  | 11.63 | 11.62  |                        |
| 10              | 64QAM | 50 | 0  | 11.61  | 11.61 | 11.67  |                        |
| Channel         |       |    |    | 18625  | 18900 | 19175  | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 1852.5 | 1880  | 1907.5 |                        |
| 5               | QPSK  | 1  | 0  | 14.88  | 14.84 | 14.72  | 15                     |
| 5               | QPSK  | 1  | 12 | 14.75  | 14.59 | 14.82  |                        |
| 5               | QPSK  | 1  | 24 | 14.69  | 14.49 | 14.67  |                        |
| 5               | QPSK  | 12 | 0  | 13.94  | 13.96 | 13.85  | 15                     |
| 5               | QPSK  | 12 | 7  | 13.83  | 13.76 | 13.97  |                        |
| 5               | QPSK  | 12 | 13 | 13.94  | 13.77 | 13.88  |                        |
| 5               | QPSK  | 25 | 0  | 13.81  | 13.82 | 13.90  |                        |
| 5               | 16QAM | 1  | 0  | 13.97  | 13.96 | 13.95  | 15                     |
| 5               | 16QAM | 1  | 12 | 13.91  | 13.94 | 13.86  |                        |
| 5               | 16QAM | 1  | 24 | 13.96  | 13.91 | 13.95  |                        |
| 5               | 16QAM | 12 | 0  | 12.96  | 12.88 | 12.92  | 15                     |
| 5               | 16QAM | 12 | 7  | 12.95  | 12.82 | 12.91  |                        |
| 5               | 16QAM | 12 | 13 | 12.85  | 12.90 | 12.79  |                        |
| 5               | 16QAM | 25 | 0  | 12.86  | 12.97 | 12.99  |                        |
| 5               | 64QAM | 1  | 0  | 12.77  | 12.71 | 12.73  | 15                     |
| 5               | 64QAM | 1  | 12 | 12.78  | 12.66 | 12.64  |                        |
| 5               | 64QAM | 1  | 24 | 12.72  | 12.50 | 12.63  |                        |
| 5               | 64QAM | 12 | 0  | 11.74  | 11.56 | 11.64  | 15                     |
| 5               | 64QAM | 12 | 7  | 11.69  | 11.58 | 11.59  |                        |
| 5               | 64QAM | 12 | 13 | 11.67  | 11.57 | 11.54  |                        |
| 5               | 64QAM | 25 | 0  | 11.60  | 11.51 | 11.60  |                        |



| Channel         |       |    |    | 18615  | 18900 | 19185  | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1851.5 | 1880  | 1908.5 |                        |
| 3               | QPSK  | 1  | 0  | 14.77  | 14.86 | 14.88  | 15                     |
| 3               | QPSK  | 1  | 8  | 14.72  | 14.67 | 14.79  |                        |
| 3               | QPSK  | 1  | 14 | 14.79  | 14.59 | 14.65  |                        |
| 3               | QPSK  | 8  | 0  | 13.93  | 13.85 | 13.99  | 15                     |
| 3               | QPSK  | 8  | 4  | 13.86  | 13.84 | 13.93  |                        |
| 3               | QPSK  | 8  | 7  | 13.88  | 13.71 | 13.92  |                        |
| 3               | QPSK  | 15 | 0  | 13.86  | 13.92 | 13.89  |                        |
| 3               | 16QAM | 1  | 0  | 13.94  | 13.99 | 13.96  | 15                     |
| 3               | 16QAM | 1  | 8  | 13.89  | 13.95 | 13.87  |                        |
| 3               | 16QAM | 1  | 14 | 13.90  | 13.87 | 13.96  |                        |
| 3               | 16QAM | 8  | 0  | 12.99  | 12.98 | 13.00  | 15                     |
| 3               | 16QAM | 8  | 4  | 13.07  | 12.82 | 12.91  |                        |
| 3               | 16QAM | 8  | 7  | 12.98  | 12.73 | 12.83  |                        |
| 3               | 16QAM | 15 | 0  | 13.00  | 12.82 | 12.83  |                        |
| 3               | 64QAM | 1  | 0  | 12.77  | 12.70 | 12.87  | 15                     |
| 3               | 64QAM | 1  | 8  | 12.83  | 12.61 | 12.61  |                        |
| 3               | 64QAM | 1  | 14 | 12.69  | 12.60 | 12.55  |                        |
| 3               | 64QAM | 8  | 0  | 11.64  | 11.71 | 11.63  | 15                     |
| 3               | 64QAM | 8  | 4  | 11.66  | 11.52 | 11.55  |                        |
| 3               | 64QAM | 8  | 7  | 11.60  | 11.53 | 11.57  |                        |
| 3               | 64QAM | 15 | 0  | 11.54  | 11.56 | 11.64  |                        |
| Channel         |       |    |    | 18607  | 18900 | 19193  | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 1850.7 | 1880  | 1909.3 |                        |
| 1.4             | QPSK  | 1  | 0  | 14.84  | 14.83 | 14.86  | 15                     |
| 1.4             | QPSK  | 1  | 3  | 14.84  | 14.60 | 14.80  |                        |
| 1.4             | QPSK  | 1  | 5  | 14.74  | 14.59 | 14.62  |                        |
| 1.4             | QPSK  | 3  | 0  | 14.03  | 13.82 | 13.88  | 15                     |
| 1.4             | QPSK  | 3  | 1  | 13.98  | 13.84 | 13.90  |                        |
| 1.4             | QPSK  | 3  | 3  | 13.88  | 13.71 | 13.94  |                        |
| 1.4             | QPSK  | 6  | 0  | 13.99  | 13.95 | 13.96  |                        |
| 1.4             | 16QAM | 1  | 0  | 13.92  | 13.99 | 13.92  | 15                     |
| 1.4             | 16QAM | 1  | 3  | 13.84  | 13.93 | 13.92  |                        |
| 1.4             | 16QAM | 1  | 5  | 13.88  | 13.89 | 13.90  |                        |
| 1.4             | 16QAM | 3  | 0  | 12.96  | 12.87 | 13.09  | 15                     |
| 1.4             | 16QAM | 3  | 1  | 12.92  | 12.90 | 12.90  |                        |
| 1.4             | 16QAM | 3  | 3  | 12.90  | 12.71 | 12.98  |                        |
| 1.4             | 16QAM | 6  | 0  | 12.84  | 12.96 | 12.80  |                        |
| 1.4             | 64QAM | 1  | 0  | 12.87  | 12.84 | 12.73  | 15                     |
| 1.4             | 64QAM | 1  | 3  | 12.70  | 12.68 | 12.74  |                        |
| 1.4             | 64QAM | 1  | 5  | 12.62  | 12.56 | 12.52  |                        |
| 1.4             | 64QAM | 3  | 0  | 12.78  | 12.76 | 12.64  | 15                     |
| 1.4             | 64QAM | 3  | 1  | 12.78  | 12.69 | 12.64  |                        |
| 1.4             | 64QAM | 3  | 3  | 12.61  | 12.66 | 12.49  |                        |
| 1.4             | 64QAM | 6  | 0  | 11.59  | 11.54 | 11.63  |                        |



**<LTE Band 4>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|
| Channel         |            |         |           | 20050                 | 20175                    | 20300                  |                     |
| Frequency (MHz) |            |         |           | 1720                  | 1732.5                   | 1745                   |                     |
| 20              | QPSK       | 1       | 0         | 14.98                 | 14.99                    | 15.00                  | 15.5                |
| 20              | QPSK       | 1       | 49        | 14.84                 | 14.82                    | 14.81                  |                     |
| 20              | QPSK       | 1       | 99        | 14.85                 | 14.85                    | 14.75                  |                     |
| 20              | QPSK       | 50      | 0         | 13.92                 | 13.99                    | 14.01                  | 15.5                |
| 20              | QPSK       | 50      | 24        | 13.90                 | 13.92                    | 13.90                  |                     |
| 20              | QPSK       | 50      | 50        | 13.90                 | 13.94                    | 13.89                  |                     |
| 20              | QPSK       | 100     | 0         | 13.91                 | 13.95                    | 13.94                  |                     |
| 20              | 16QAM      | 1       | 0         | 14.60                 | 14.51                    | 14.52                  | 15.5                |
| 20              | 16QAM      | 1       | 49        | 14.45                 | 14.44                    | 14.48                  |                     |
| 20              | 16QAM      | 1       | 99        | 14.38                 | 14.29                    | 14.40                  |                     |
| 20              | 16QAM      | 50      | 0         | 13.00                 | 12.98                    | 13.00                  | 15.5                |
| 20              | 16QAM      | 50      | 24        | 12.99                 | 12.97                    | 12.99                  |                     |
| 20              | 16QAM      | 50      | 50        | 12.94                 | 12.96                    | 12.94                  |                     |
| 20              | 16QAM      | 100     | 0         | 12.98                 | 12.99                    | 13.00                  |                     |
| 20              | 64QAM      | 1       | 0         | 13.47                 | 13.33                    | 13.41                  | 15.5                |
| 20              | 64QAM      | 1       | 49        | 13.33                 | 13.37                    | 13.42                  |                     |
| 20              | 64QAM      | 1       | 99        | 13.38                 | 13.20                    | 13.40                  |                     |
| 20              | 64QAM      | 50      | 0         | 12.47                 | 12.42                    | 12.48                  | 15.5                |
| 20              | 64QAM      | 50      | 24        | 12.43                 | 12.42                    | 12.47                  |                     |
| 20              | 64QAM      | 50      | 50        | 12.48                 | 12.45                    | 12.49                  |                     |
| 20              | 64QAM      | 100     | 0         | 12.48                 | 12.50                    | 12.46                  |                     |
| Channel         |            |         |           | 20025                 | 20175                    | 20325                  | Tune-up limit (dBm) |
| Frequency (MHz) |            |         |           | 1717.5                | 1732.5                   | 1747.5                 |                     |
| 15              | QPSK       | 1       | 0         | 14.90                 | 14.86                    | 14.97                  | 15.5                |
| 15              | QPSK       | 1       | 37        | 14.66                 | 14.79                    | 14.81                  |                     |
| 15              | QPSK       | 1       | 74        | 14.69                 | 14.70                    | 14.68                  |                     |
| 15              | QPSK       | 36      | 0         | 13.81                 | 13.88                    | 13.84                  | 15.5                |
| 15              | QPSK       | 36      | 20        | 13.83                 | 13.77                    | 13.78                  |                     |
| 15              | QPSK       | 36      | 39        | 13.83                 | 13.83                    | 13.71                  |                     |
| 15              | QPSK       | 75      | 0         | 13.74                 | 13.90                    | 13.93                  |                     |
| 15              | 16QAM      | 1       | 0         | 13.83                 | 13.82                    | 13.79                  | 15.5                |
| 15              | 16QAM      | 1       | 37        | 13.65                 | 13.77                    | 13.77                  |                     |
| 15              | 16QAM      | 1       | 74        | 13.63                 | 13.54                    | 13.63                  |                     |
| 15              | 16QAM      | 36      | 0         | 12.82                 | 12.87                    | 12.95                  | 15.5                |
| 15              | 16QAM      | 36      | 20        | 12.79                 | 12.81                    | 12.97                  |                     |
| 15              | 16QAM      | 36      | 39        | 12.87                 | 12.95                    | 12.78                  |                     |
| 15              | 16QAM      | 75      | 0         | 12.96                 | 12.96                    | 12.89                  |                     |
| 15              | 64QAM      | 1       | 0         | 13.49                 | 13.42                    | 13.32                  | 15.5                |
| 15              | 64QAM      | 1       | 37        | 13.42                 | 13.40                    | 13.45                  |                     |
| 15              | 64QAM      | 1       | 74        | 13.20                 | 13.25                    | 13.39                  |                     |
| 15              | 64QAM      | 36      | 0         | 12.42                 | 12.42                    | 12.45                  | 15.5                |
| 15              | 64QAM      | 36      | 20        | 12.41                 | 12.43                    | 12.43                  |                     |
| 15              | 64QAM      | 36      | 39        | 12.48                 | 12.48                    | 12.47                  |                     |
| 15              | 64QAM      | 75      | 0         | 12.46                 | 12.47                    | 12.47                  |                     |



| Channel         |       |    |    | 20000  | 20175  | 20350  | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1715   | 1732.5 | 1750   |                        |
| 10              | QPSK  | 1  | 0  | 14.85  | 14.80  | 14.99  | 15.5                   |
| 10              | QPSK  | 1  | 25 | 14.66  | 14.73  | 14.75  |                        |
| 10              | QPSK  | 1  | 49 | 14.71  | 14.79  | 14.66  |                        |
| 10              | QPSK  | 25 | 0  | 13.87  | 13.99  | 13.89  | 15.5                   |
| 10              | QPSK  | 25 | 12 | 13.86  | 13.88  | 13.83  |                        |
| 10              | QPSK  | 25 | 25 | 13.90  | 13.84  | 13.79  |                        |
| 10              | QPSK  | 50 | 0  | 13.72  | 13.79  | 13.78  | 15.5                   |
| 10              | 16QAM | 1  | 0  | 13.81  | 13.75  | 13.87  |                        |
| 10              | 16QAM | 1  | 25 | 13.83  | 13.76  | 13.76  |                        |
| 10              | 16QAM | 1  | 49 | 13.63  | 13.51  | 13.60  | 15.5                   |
| 10              | 16QAM | 25 | 0  | 12.90  | 12.92  | 12.99  |                        |
| 10              | 16QAM | 25 | 12 | 12.79  | 12.78  | 12.83  |                        |
| 10              | 16QAM | 25 | 25 | 12.88  | 12.81  | 12.86  | 15.5                   |
| 10              | 16QAM | 50 | 0  | 12.86  | 12.84  | 12.94  |                        |
| 10              | 64QAM | 1  | 0  | 13.50  | 13.31  | 13.49  | 15.5                   |
| 10              | 64QAM | 1  | 25 | 13.27  | 13.35  | 13.46  |                        |
| 10              | 64QAM | 1  | 49 | 13.23  | 13.19  | 13.21  |                        |
| 10              | 64QAM | 25 | 0  | 12.50  | 12.48  | 12.44  | 15.5                   |
| 10              | 64QAM | 25 | 12 | 12.46  | 12.39  | 12.46  |                        |
| 10              | 64QAM | 25 | 25 | 12.38  | 12.48  | 12.49  |                        |
| 10              | 64QAM | 50 | 0  | 12.41  | 12.42  | 12.41  |                        |
| Channel         |       |    |    | 19975  | 20175  | 20375  | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 1712.5 | 1732.5 | 1752.5 |                        |
| 5               | QPSK  | 1  | 0  | 14.97  | 14.95  | 14.91  | 15.5                   |
| 5               | QPSK  | 1  | 12 | 14.72  | 14.66  | 14.80  |                        |
| 5               | QPSK  | 1  | 24 | 14.75  | 14.72  | 14.67  |                        |
| 5               | QPSK  | 12 | 0  | 13.75  | 13.80  | 13.97  | 15.5                   |
| 5               | QPSK  | 12 | 7  | 13.81  | 13.77  | 13.70  |                        |
| 5               | QPSK  | 12 | 13 | 13.90  | 13.81  | 13.85  |                        |
| 5               | QPSK  | 25 | 0  | 13.84  | 13.91  | 13.85  | 15.5                   |
| 5               | 16QAM | 1  | 0  | 13.92  | 13.87  | 13.76  |                        |
| 5               | 16QAM | 1  | 12 | 13.80  | 13.76  | 13.75  |                        |
| 5               | 16QAM | 1  | 24 | 13.64  | 13.50  | 13.80  | 15.5                   |
| 5               | 16QAM | 12 | 0  | 12.91  | 12.78  | 13.00  |                        |
| 5               | 16QAM | 12 | 7  | 12.98  | 12.89  | 12.93  |                        |
| 5               | 16QAM | 12 | 13 | 12.92  | 12.76  | 12.94  | 15.5                   |
| 5               | 16QAM | 25 | 0  | 12.82  | 12.91  | 12.93  |                        |
| 5               | 64QAM | 1  | 0  | 13.49  | 13.34  | 13.33  |                        |
| 5               | 64QAM | 1  | 12 | 13.44  | 13.31  | 13.40  | 15.5                   |
| 5               | 64QAM | 1  | 24 | 13.18  | 13.15  | 13.20  |                        |
| 5               | 64QAM | 12 | 0  | 12.48  | 12.50  | 12.41  |                        |
| 5               | 64QAM | 12 | 7  | 12.45  | 12.46  | 12.47  | 15.5                   |
| 5               | 64QAM | 12 | 13 | 12.41  | 12.36  | 12.44  |                        |
| 5               | 64QAM | 25 | 0  | 12.49  | 12.44  | 12.42  |                        |



| Channel         |       |    |    | 19965  | 20175  | 20385  | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1711.5 | 1732.5 | 1753.5 |                        |
| 3               | QPSK  | 1  | 0  | 14.86  | 14.80  | 14.98  | 15.5                   |
| 3               | QPSK  | 1  | 8  | 14.65  | 14.65  | 14.71  |                        |
| 3               | QPSK  | 1  | 14 | 14.83  | 14.78  | 14.55  |                        |
| 3               | QPSK  | 8  | 0  | 13.88  | 13.79  | 13.96  | 15.5                   |
| 3               | QPSK  | 8  | 4  | 13.71  | 13.92  | 13.84  |                        |
| 3               | QPSK  | 8  | 7  | 13.77  | 13.76  | 13.77  |                        |
| 3               | QPSK  | 15 | 0  | 13.80  | 13.85  | 13.77  |                        |
| 3               | 16QAM | 1  | 0  | 13.81  | 13.76  | 13.75  | 15.5                   |
| 3               | 16QAM | 1  | 8  | 13.82  | 13.82  | 13.84  |                        |
| 3               | 16QAM | 1  | 14 | 13.78  | 13.64  | 13.68  |                        |
| 3               | 16QAM | 8  | 0  | 13.00  | 12.89  | 12.85  | 15.5                   |
| 3               | 16QAM | 8  | 4  | 12.89  | 12.95  | 12.86  |                        |
| 3               | 16QAM | 8  | 7  | 12.75  | 12.82  | 12.91  |                        |
| 3               | 16QAM | 15 | 0  | 12.94  | 12.86  | 12.90  |                        |
| 3               | 64QAM | 1  | 0  | 13.42  | 13.33  | 13.44  | 15.5                   |
| 3               | 64QAM | 1  | 8  | 13.35  | 13.27  | 13.38  |                        |
| 3               | 64QAM | 1  | 14 | 13.38  | 13.21  | 13.34  |                        |
| 3               | 64QAM | 8  | 0  | 12.48  | 12.41  | 12.41  | 15.5                   |
| 3               | 64QAM | 8  | 4  | 12.49  | 12.43  | 12.45  |                        |
| 3               | 64QAM | 8  | 7  | 12.38  | 12.50  | 12.50  |                        |
| 3               | 64QAM | 15 | 0  | 12.42  | 12.43  | 12.43  |                        |
| Channel         |       |    |    | 19957  | 20175  | 20393  | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 1710.7 | 1732.5 | 1754.3 |                        |
| 1.4             | QPSK  | 1  | 0  | 14.98  | 14.86  | 14.97  | 15.5                   |
| 1.4             | QPSK  | 1  | 3  | 14.68  | 14.62  | 14.70  |                        |
| 1.4             | QPSK  | 1  | 5  | 14.72  | 14.69  | 14.65  |                        |
| 1.4             | QPSK  | 3  | 0  | 13.78  | 13.82  | 13.81  | 15.5                   |
| 1.4             | QPSK  | 3  | 1  | 13.80  | 13.83  | 13.78  |                        |
| 1.4             | QPSK  | 3  | 3  | 13.73  | 13.85  | 13.72  |                        |
| 1.4             | QPSK  | 6  | 0  | 13.84  | 13.82  | 13.81  |                        |
| 1.4             | 16QAM | 1  | 0  | 13.96  | 13.87  | 13.80  | 15.5                   |
| 1.4             | 16QAM | 1  | 3  | 13.74  | 13.73  | 13.80  |                        |
| 1.4             | 16QAM | 1  | 5  | 13.68  | 13.63  | 13.72  |                        |
| 1.4             | 16QAM | 3  | 0  | 12.84  | 12.87  | 12.90  | 15.5                   |
| 1.4             | 16QAM | 3  | 1  | 12.97  | 12.86  | 12.81  |                        |
| 1.4             | 16QAM | 3  | 3  | 12.82  | 12.83  | 12.82  |                        |
| 1.4             | 16QAM | 6  | 0  | 12.94  | 12.96  | 13.00  |                        |
| 1.4             | 64QAM | 1  | 0  | 13.48  | 13.49  | 13.48  | 15.5                   |
| 1.4             | 64QAM | 1  | 3  | 13.42  | 13.31  | 13.36  |                        |
| 1.4             | 64QAM | 1  | 5  | 13.35  | 13.21  | 13.31  |                        |
| 1.4             | 64QAM | 3  | 0  | 13.40  | 13.44  | 13.45  | 15.5                   |
| 1.4             | 64QAM | 3  | 1  | 13.46  | 13.29  | 13.45  |                        |
| 1.4             | 64QAM | 3  | 3  | 13.44  | 13.30  | 13.40  |                        |
| 1.4             | 64QAM | 6  | 0  | 12.46  | 12.42  | 12.42  |                        |



**<LTE Band 5>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|
| Channel         |            |         |           | 20450                 | 20525                    | 20600                  |                     |
| Frequency (MHz) |            |         |           | 829                   | 836.5                    | 844                    |                     |
| 10              | QPSK       | 1       | 0         | 22.01                 | 22.00                    | 21.94                  | 22.5                |
| 10              | QPSK       | 1       | 25        | 21.91                 | 21.91                    | 21.95                  |                     |
| 10              | QPSK       | 1       | 49        | 21.89                 | 21.92                    | 21.94                  |                     |
| 10              | QPSK       | 25      | 0         | 21.04                 | 21.02                    | 21.03                  | 22.5                |
| 10              | QPSK       | 25      | 12        | 21.03                 | 20.99                    | 21.02                  |                     |
| 10              | QPSK       | 25      | 25        | 20.97                 | 20.92                    | 20.96                  |                     |
| 10              | QPSK       | 50      | 0         | 21.03                 | 20.99                    | 21.03                  |                     |
| 10              | 16QAM      | 1       | 0         | 21.21                 | 21.22                    | 21.11                  | 22.5                |
| 10              | 16QAM      | 1       | 25        | 21.14                 | 21.09                    | 21.18                  |                     |
| 10              | 16QAM      | 1       | 49        | 21.09                 | 21.14                    | 21.13                  |                     |
| 10              | 16QAM      | 25      | 0         | 20.53                 | 20.51                    | 20.50                  | 22                  |
| 10              | 16QAM      | 25      | 12        | 20.51                 | 20.49                    | 20.50                  |                     |
| 10              | 16QAM      | 25      | 25        | 20.45                 | 20.43                    | 20.43                  |                     |
| 10              | 16QAM      | 50      | 0         | 20.50                 | 20.47                    | 20.50                  |                     |
| 10              | 64QAM      | 1       | 0         | 20.23                 | 20.20                    | 20.08                  | 22                  |
| 10              | 64QAM      | 1       | 25        | 20.12                 | 20.05                    | 20.15                  |                     |
| 10              | 64QAM      | 1       | 49        | 20.09                 | 20.13                    | 20.11                  |                     |
| 10              | 64QAM      | 25      | 0         | 19.35                 | 19.32                    | 19.32                  | 21                  |
| 10              | 64QAM      | 25      | 12        | 19.32                 | 19.30                    | 19.31                  |                     |
| 10              | 64QAM      | 25      | 25        | 19.28                 | 19.21                    | 19.26                  |                     |
| 10              | 64QAM      | 50      | 0         | 19.32                 | 19.29                    | 19.32                  |                     |
| Channel         |            |         |           | 20425                 | 20525                    | 20625                  | Tune-up limit (dBm) |
| Frequency (MHz) |            |         |           | 826.5                 | 836.5                    | 846.5                  |                     |
| 5               | QPSK       | 1       | 0         | 21.90                 | 21.85                    | 21.71                  | 22.5                |
| 5               | QPSK       | 1       | 12        | 21.94                 | 21.95                    | 21.90                  |                     |
| 5               | QPSK       | 1       | 24        | 21.89                 | 21.85                    | 21.81                  |                     |
| 5               | QPSK       | 12      | 0         | 21.04                 | 21.03                    | 21.06                  | 22.5                |
| 5               | QPSK       | 12      | 7         | 21.07                 | 21.04                    | 21.07                  |                     |
| 5               | QPSK       | 12      | 13        | 21.03                 | 20.97                    | 21.02                  |                     |
| 5               | QPSK       | 25      | 0         | 21.06                 | 21.03                    | 21.04                  |                     |
| 5               | 16QAM      | 1       | 0         | 21.12                 | 20.83                    | 20.91                  | 22.5                |
| 5               | 16QAM      | 1       | 12        | 21.18                 | 21.11                    | 20.80                  |                     |
| 5               | 16QAM      | 1       | 24        | 21.06                 | 21.05                    | 20.82                  |                     |
| 5               | 16QAM      | 12      | 0         | 20.21                 | 20.15                    | 20.19                  | 22                  |
| 5               | 16QAM      | 12      | 7         | 20.22                 | 20.20                    | 20.17                  |                     |
| 5               | 16QAM      | 12      | 13        | 20.17                 | 20.11                    | 20.14                  |                     |
| 5               | 16QAM      | 25      | 0         | 20.19                 | 20.12                    | 20.18                  |                     |
| 5               | 64QAM      | 1       | 0         | 20.30                 | 20.26                    | 20.24                  | 22                  |
| 5               | 64QAM      | 1       | 12        | 20.46                 | 20.36                    | 20.38                  |                     |
| 5               | 64QAM      | 1       | 24        | 20.19                 | 20.13                    | 20.20                  |                     |
| 5               | 64QAM      | 12      | 0         | 19.12                 | 19.08                    | 19.10                  | 21                  |
| 5               | 64QAM      | 12      | 7         | 19.13                 | 19.10                    | 19.13                  |                     |
| 5               | 64QAM      | 12      | 13        | 19.10                 | 19.05                    | 19.07                  |                     |
| 5               | 64QAM      | 25      | 0         | 19.08                 | 19.03                    | 19.09                  |                     |



| Channel         |       |    |    | 20415 | 20525 | 20635 | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|-------|-------|-------|------------------------|
| Frequency (MHz) |       |    |    | 825.5 | 836.5 | 847.5 |                        |
| 3               | QPSK  | 1  | 0  | 21.75 | 21.94 | 21.77 | 22.5                   |
| 3               | QPSK  | 1  | 8  | 21.55 | 21.91 | 21.59 |                        |
| 3               | QPSK  | 1  | 14 | 21.71 | 21.81 | 21.59 |                        |
| 3               | QPSK  | 8  | 0  | 21.01 | 20.91 | 21.00 | 22.5                   |
| 3               | QPSK  | 8  | 4  | 21.03 | 20.90 | 21.02 |                        |
| 3               | QPSK  | 8  | 7  | 20.94 | 20.83 | 20.96 |                        |
| 3               | QPSK  | 15 | 0  | 21.05 | 20.98 | 21.02 |                        |
| 3               | 16QAM | 1  | 0  | 21.03 | 21.19 | 21.06 | 22.5                   |
| 3               | 16QAM | 1  | 8  | 20.82 | 20.79 | 20.81 |                        |
| 3               | 16QAM | 1  | 14 | 20.97 | 20.77 | 20.88 |                        |
| 3               | 16QAM | 8  | 0  | 20.28 | 20.23 | 20.25 | 22                     |
| 3               | 16QAM | 8  | 4  | 20.30 | 20.26 | 20.31 |                        |
| 3               | 16QAM | 8  | 7  | 20.21 | 20.23 | 20.22 |                        |
| 3               | 16QAM | 15 | 0  | 20.22 | 20.20 | 20.20 |                        |
| 3               | 64QAM | 1  | 0  | 20.26 | 20.15 | 20.43 | 22                     |
| 3               | 64QAM | 1  | 8  | 20.03 | 20.46 | 20.05 |                        |
| 3               | 64QAM | 1  | 14 | 20.17 | 20.38 | 20.22 |                        |
| 3               | 64QAM | 8  | 0  | 19.35 | 19.13 | 19.25 | 21                     |
| 3               | 64QAM | 8  | 4  | 19.29 | 19.17 | 19.31 |                        |
| 3               | 64QAM | 8  | 7  | 19.21 | 19.07 | 19.17 |                        |
| 3               | 64QAM | 15 | 0  | 19.21 | 19.20 | 19.22 |                        |
| Channel         |       |    |    | 20407 | 20525 | 20643 | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 824.7 | 836.5 | 848.3 |                        |
| 1.4             | QPSK  | 1  | 0  | 21.89 | 21.41 | 21.38 | 22.5                   |
| 1.4             | QPSK  | 1  | 3  | 21.84 | 21.43 | 21.49 |                        |
| 1.4             | QPSK  | 1  | 5  | 21.85 | 21.38 | 21.45 |                        |
| 1.4             | QPSK  | 3  | 0  | 21.55 | 21.64 | 21.75 | 22.5                   |
| 1.4             | QPSK  | 3  | 1  | 21.80 | 21.72 | 21.85 |                        |
| 1.4             | QPSK  | 3  | 3  | 21.76 | 21.83 | 21.84 |                        |
| 1.4             | QPSK  | 6  | 0  | 20.80 | 20.83 | 20.83 |                        |
| 1.4             | 16QAM | 1  | 0  | 21.13 | 20.61 | 20.67 | 22.5                   |
| 1.4             | 16QAM | 1  | 3  | 20.98 | 20.66 | 20.62 |                        |
| 1.4             | 16QAM | 1  | 5  | 21.22 | 20.66 | 20.86 |                        |
| 1.4             | 16QAM | 3  | 0  | 20.61 | 20.72 | 20.81 | 22                     |
| 1.4             | 16QAM | 3  | 1  | 20.73 | 20.71 | 20.88 |                        |
| 1.4             | 16QAM | 3  | 3  | 20.75 | 20.68 | 20.84 |                        |
| 1.4             | 16QAM | 6  | 0  | 20.04 | 20.02 | 20.13 |                        |
| 1.4             | 64QAM | 1  | 0  | 20.16 | 20.02 | 20.14 | 22                     |
| 1.4             | 64QAM | 1  | 3  | 20.04 | 20.13 | 20.08 |                        |
| 1.4             | 64QAM | 1  | 5  | 20.05 | 20.02 | 20.08 |                        |
| 1.4             | 64QAM | 3  | 0  | 19.76 | 19.71 | 19.68 | 21                     |
| 1.4             | 64QAM | 3  | 1  | 20.01 | 19.87 | 19.92 |                        |
| 1.4             | 64QAM | 3  | 3  | 19.88 | 19.89 | 19.98 |                        |
| 1.4             | 64QAM | 6  | 0  | 19.32 | 19.27 | 19.32 |                        |



**<LTE Band 13>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|
| Channel         |            |         |           | 23230                    |                             |                           |                        |
| Frequency (MHz) |            |         |           | 782                      |                             |                           |                        |
| 10              | QPSK       | 1       | 0         |                          | 23.49                       |                           | 24                     |
| 10              | QPSK       | 1       | 25        |                          | 23.32                       |                           |                        |
| 10              | QPSK       | 1       | 49        |                          | 23.31                       |                           |                        |
| 10              | QPSK       | 25      | 0         |                          | 22.61                       |                           | 23                     |
| 10              | QPSK       | 25      | 12        |                          | 22.57                       |                           |                        |
| 10              | QPSK       | 25      | 25        |                          | 22.48                       |                           |                        |
| 10              | QPSK       | 50      | 0         |                          | 22.52                       |                           |                        |
| 10              | 16QAM      | 1       | 0         |                          | 22.72                       |                           | 23                     |
| 10              | 16QAM      | 1       | 25        |                          | 22.69                       |                           |                        |
| 10              | 16QAM      | 1       | 49        |                          | 22.50                       |                           |                        |
| 10              | 16QAM      | 25      | 0         |                          | 21.62                       |                           | 22                     |
| 10              | 16QAM      | 25      | 12        |                          | 21.58                       |                           |                        |
| 10              | 16QAM      | 25      | 25        |                          | 21.51                       |                           |                        |
| 10              | 16QAM      | 50      | 0         |                          | 21.52                       |                           |                        |
| 10              | 64QAM      | 1       | 0         |                          | 21.63                       |                           | 22                     |
| 10              | 64QAM      | 1       | 25        |                          | 21.61                       |                           |                        |
| 10              | 64QAM      | 1       | 49        |                          | 21.59                       |                           |                        |
| 10              | 64QAM      | 25      | 0         |                          | 20.51                       |                           | 21                     |
| 10              | 64QAM      | 25      | 12        |                          | 20.38                       |                           |                        |
| 10              | 64QAM      | 25      | 25        |                          | 20.39                       |                           |                        |
| 10              | 64QAM      | 50      | 0         |                          | 20.46                       |                           |                        |
| Channel         |            |         |           | 23205                    | 23230                       | 23255                     | Tune-up limit<br>(dBm) |
| Frequency (MHz) |            |         |           | 779.5                    | 782                         | 784.5                     |                        |
| 5               | QPSK       | 1       | 0         | 23.47                    | 23.09                       | 23.38                     | 24                     |
| 5               | QPSK       | 1       | 12        | 22.79                    | 22.98                       | 23.38                     |                        |
| 5               | QPSK       | 1       | 24        | 23.48                    | 23.11                       | 23.03                     |                        |
| 5               | QPSK       | 12      | 0         | 22.54                    | 22.56                       | 22.56                     | 23                     |
| 5               | QPSK       | 12      | 7         | 22.58                    | 22.49                       | 22.53                     |                        |
| 5               | QPSK       | 12      | 13        | 22.51                    | 22.47                       | 22.47                     |                        |
| 5               | QPSK       | 25      | 0         | 22.53                    | 22.55                       | 22.55                     | 23                     |
| 5               | 16QAM      | 1       | 0         | 22.74                    | 21.96                       | 22.99                     |                        |
| 5               | 16QAM      | 1       | 12        | 22.99                    | 22.37                       | 22.96                     |                        |
| 5               | 16QAM      | 1       | 24        | 22.50                    | 22.13                       | 22.09                     |                        |
| 5               | 16QAM      | 12      | 0         | 21.54                    | 21.57                       | 21.56                     | 22                     |
| 5               | 16QAM      | 12      | 7         | 21.50                    | 21.68                       | 21.54                     |                        |
| 5               | 16QAM      | 12      | 13        | 21.48                    | 21.54                       | 21.40                     |                        |
| 5               | 16QAM      | 25      | 0         | 21.49                    | 21.57                       | 21.54                     |                        |
| 5               | 64QAM      | 1       | 0         | 21.48                    | 21.54                       | 21.49                     | 22                     |
| 5               | 64QAM      | 1       | 12        | 21.61                    | 21.42                       | 21.59                     |                        |
| 5               | 64QAM      | 1       | 24        | 21.45                    | 21.40                       | 21.44                     |                        |
| 5               | 64QAM      | 12      | 0         | 20.50                    | 20.49                       | 20.39                     | 21                     |
| 5               | 64QAM      | 12      | 7         | 20.27                    | 20.37                       | 20.29                     |                        |
| 5               | 64QAM      | 12      | 13        | 20.27                    | 20.25                       | 20.24                     |                        |
| 5               | 64QAM      | 25      | 0         | 20.41                    | 20.31                       | 20.36                     |                        |



**<LTE Band 66>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|
| Channel         |            |         |           | 132072                | 132322                   | 132572                 | 16                  |
| Frequency (MHz) |            |         |           | 1720                  | 1745                     | 1770                   |                     |
| 20              | QPSK       | 1       | 0         | 15.69                 | 15.73                    | 15.55                  | 16                  |
| 20              | QPSK       | 1       | 49        | 15.47                 | 15.53                    | 15.44                  |                     |
| 20              | QPSK       | 1       | 99        | 15.58                 | 15.51                    | 15.44                  |                     |
| 20              | QPSK       | 50      | 0         | 15.19                 | 15.23                    | 15.08                  | 16                  |
| 20              | QPSK       | 50      | 24        | 15.13                 | 15.17                    | 15.07                  |                     |
| 20              | QPSK       | 50      | 50        | 15.07                 | 15.12                    | 15.00                  |                     |
| 20              | QPSK       | 100     | 0         | 15.09                 | 15.18                    | 15.08                  |                     |
| 20              | 16QAM      | 1       | 0         | 15.00                 | 15.00                    | 14.93                  | 16                  |
| 20              | 16QAM      | 1       | 49        | 14.86                 | 14.99                    | 14.84                  |                     |
| 20              | 16QAM      | 1       | 99        | 15.00                 | 14.99                    | 14.83                  |                     |
| 20              | 16QAM      | 50      | 0         | 13.75                 | 13.81                    | 13.68                  | 16                  |
| 20              | 16QAM      | 50      | 24        | 13.72                 | 13.72                    | 13.64                  |                     |
| 20              | 16QAM      | 50      | 50        | 13.63                 | 13.67                    | 13.53                  |                     |
| 20              | 16QAM      | 100     | 0         | 13.69                 | 13.69                    | 13.64                  |                     |
| 20              | 64QAM      | 1       | 0         | 13.91                 | 13.98                    | 14.00                  | 16                  |
| 20              | 64QAM      | 1       | 49        | 13.96                 | 13.95                    | 13.90                  |                     |
| 20              | 64QAM      | 1       | 99        | 14.00                 | 13.93                    | 13.86                  |                     |
| 20              | 64QAM      | 50      | 0         | 12.66                 | 12.83                    | 12.63                  | 16                  |
| 20              | 64QAM      | 50      | 24        | 12.65                 | 12.72                    | 12.66                  |                     |
| 20              | 64QAM      | 50      | 50        | 12.60                 | 12.65                    | 12.53                  |                     |
| 20              | 64QAM      | 100     | 0         | 12.70                 | 12.72                    | 12.71                  |                     |
| Channel         |            |         |           | 132047                | 132322                   | 132597                 | 16                  |
| Frequency (MHz) |            |         |           | 1717.5                | 1745                     | 1772.5                 |                     |
| 15              | QPSK       | 1       | 0         | 15.64                 | 15.69                    | 15.37                  | 16                  |
| 15              | QPSK       | 1       | 37        | 15.44                 | 15.39                    | 15.32                  |                     |
| 15              | QPSK       | 1       | 74        | 15.45                 | 15.42                    | 15.33                  |                     |
| 15              | QPSK       | 36      | 0         | 14.54                 | 14.62                    | 14.54                  | 16                  |
| 15              | QPSK       | 36      | 20        | 14.45                 | 14.51                    | 14.51                  |                     |
| 15              | QPSK       | 36      | 39        | 14.41                 | 14.59                    | 14.32                  |                     |
| 15              | QPSK       | 75      | 0         | 14.43                 | 14.48                    | 14.40                  |                     |
| 15              | 16QAM      | 1       | 0         | 14.99                 | 14.93                    | 14.86                  | 16                  |
| 15              | 16QAM      | 1       | 37        | 14.80                 | 14.79                    | 14.64                  |                     |
| 15              | 16QAM      | 1       | 74        | 14.93                 | 14.91                    | 14.70                  |                     |
| 15              | 16QAM      | 36      | 0         | 13.57                 | 13.77                    | 13.61                  | 16                  |
| 15              | 16QAM      | 36      | 20        | 13.63                 | 13.62                    | 13.55                  |                     |
| 15              | 16QAM      | 36      | 39        | 13.62                 | 13.51                    | 13.50                  |                     |
| 15              | 16QAM      | 75      | 0         | 13.64                 | 13.59                    | 13.60                  |                     |
| 15              | 64QAM      | 1       | 0         | 14.00                 | 13.91                    | 13.96                  | 16                  |
| 15              | 64QAM      | 1       | 37        | 13.79                 | 13.96                    | 13.87                  |                     |
| 15              | 64QAM      | 1       | 74        | 13.97                 | 13.91                    | 13.73                  |                     |
| 15              | 64QAM      | 36      | 0         | 12.79                 | 12.83                    | 12.60                  | 16                  |
| 15              | 64QAM      | 36      | 20        | 12.77                 | 12.80                    | 12.69                  |                     |
| 15              | 64QAM      | 36      | 39        | 12.66                 | 12.71                    | 12.58                  |                     |
| 15              | 64QAM      | 75      | 0         | 12.70                 | 12.71                    | 12.67                  |                     |



| Channel         |       |    |    | 132022 | 132322 | 132622 | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1715   | 1745   | 1775   |                        |
| 10              | QPSK  | 1  | 0  | 15.67  | 15.62  | 15.51  | 16                     |
| 10              | QPSK  | 1  | 25 | 15.37  | 15.36  | 15.26  |                        |
| 10              | QPSK  | 1  | 49 | 15.53  | 15.43  | 15.32  |                        |
| 10              | QPSK  | 25 | 0  | 14.49  | 14.71  | 14.51  | 16                     |
| 10              | QPSK  | 25 | 12 | 14.58  | 14.56  | 14.56  |                        |
| 10              | QPSK  | 25 | 25 | 14.57  | 14.57  | 14.40  |                        |
| 10              | QPSK  | 50 | 0  | 14.51  | 14.48  | 14.45  | 16                     |
| 10              | 16QAM | 1  | 0  | 14.87  | 14.86  | 14.73  |                        |
| 10              | 16QAM | 1  | 25 | 14.66  | 14.97  | 14.77  |                        |
| 10              | 16QAM | 1  | 49 | 14.85  | 14.99  | 14.74  | 16                     |
| 10              | 16QAM | 25 | 0  | 13.70  | 13.64  | 13.61  |                        |
| 10              | 16QAM | 25 | 12 | 13.65  | 13.63  | 13.48  |                        |
| 10              | 16QAM | 25 | 25 | 13.63  | 13.63  | 13.36  | 16                     |
| 10              | 16QAM | 50 | 0  | 13.49  | 13.55  | 13.52  |                        |
| 10              | 64QAM | 1  | 0  | 13.91  | 13.92  | 13.90  | 16                     |
| 10              | 64QAM | 1  | 25 | 13.91  | 13.94  | 13.92  |                        |
| 10              | 64QAM | 1  | 49 | 13.95  | 13.93  | 13.77  |                        |
| 10              | 64QAM | 25 | 0  | 12.69  | 12.90  | 12.68  | 16                     |
| 10              | 64QAM | 25 | 12 | 12.66  | 12.77  | 12.62  |                        |
| 10              | 64QAM | 25 | 25 | 12.53  | 12.66  | 12.59  |                        |
| 10              | 64QAM | 50 | 0  | 12.59  | 12.66  | 12.63  |                        |
| Channel         |       |    |    | 131997 | 132322 | 132647 | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 1712.5 | 1745   | 1777.5 |                        |
| 5               | QPSK  | 1  | 0  | 15.59  | 15.69  | 15.50  | 16                     |
| 5               | QPSK  | 1  | 12 | 15.30  | 15.52  | 15.38  |                        |
| 5               | QPSK  | 1  | 24 | 15.39  | 15.32  | 15.27  |                        |
| 5               | QPSK  | 12 | 0  | 14.51  | 14.53  | 14.43  | 16                     |
| 5               | QPSK  | 12 | 7  | 14.57  | 14.64  | 14.39  |                        |
| 5               | QPSK  | 12 | 13 | 14.51  | 14.46  | 14.36  |                        |
| 5               | QPSK  | 25 | 0  | 14.48  | 14.51  | 14.46  | 16                     |
| 5               | 16QAM | 1  | 0  | 14.86  | 14.84  | 14.90  |                        |
| 5               | 16QAM | 1  | 12 | 14.73  | 14.84  | 14.84  |                        |
| 5               | 16QAM | 1  | 24 | 14.98  | 14.94  | 14.63  | 16                     |
| 5               | 16QAM | 12 | 0  | 13.63  | 13.81  | 13.50  |                        |
| 5               | 16QAM | 12 | 7  | 13.66  | 13.64  | 13.44  |                        |
| 5               | 16QAM | 12 | 13 | 13.56  | 13.63  | 13.42  | 16                     |
| 5               | 16QAM | 25 | 0  | 13.66  | 13.62  | 13.49  |                        |
| 5               | 64QAM | 1  | 0  | 13.99  | 13.99  | 13.97  |                        |
| 5               | 64QAM | 1  | 12 | 13.88  | 13.92  | 13.85  | 16                     |
| 5               | 64QAM | 1  | 24 | 13.98  | 13.95  | 13.76  |                        |
| 5               | 64QAM | 12 | 0  | 12.67  | 12.77  | 12.59  |                        |
| 5               | 64QAM | 12 | 7  | 12.82  | 12.76  | 12.55  | 16                     |
| 5               | 64QAM | 12 | 13 | 12.69  | 12.75  | 12.63  |                        |
| 5               | 64QAM | 25 | 0  | 12.72  | 12.62  | 12.54  |                        |



| Channel         |       |    |    | 131987 | 132322 | 132657 | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|
| Frequency (MHz) |       |    |    | 1711.5 | 1745   | 1778.5 |                        |
| 3               | QPSK  | 1  | 0  | 15.57  | 15.69  | 15.45  | 16                     |
| 3               | QPSK  | 1  | 8  | 15.28  | 15.50  | 15.39  |                        |
| 3               | QPSK  | 1  | 14 | 15.49  | 15.37  | 15.39  |                        |
| 3               | QPSK  | 8  | 0  | 14.65  | 14.65  | 14.51  | 16                     |
| 3               | QPSK  | 8  | 4  | 14.53  | 14.53  | 14.53  |                        |
| 3               | QPSK  | 8  | 7  | 14.37  | 14.55  | 14.41  |                        |
| 3               | QPSK  | 15 | 0  | 14.48  | 14.63  | 14.52  | 16                     |
| 3               | 16QAM | 1  | 0  | 14.86  | 14.86  | 14.76  |                        |
| 3               | 16QAM | 1  | 8  | 14.75  | 14.89  | 14.66  |                        |
| 3               | 16QAM | 1  | 14 | 14.93  | 14.87  | 14.71  | 16                     |
| 3               | 16QAM | 8  | 0  | 13.71  | 13.61  | 13.49  |                        |
| 3               | 16QAM | 8  | 4  | 13.56  | 13.55  | 13.46  |                        |
| 3               | 16QAM | 8  | 7  | 13.43  | 13.62  | 13.48  | 16                     |
| 3               | 16QAM | 15 | 0  | 13.58  | 13.68  | 13.53  |                        |
| 3               | 64QAM | 1  | 0  | 13.91  | 14.00  | 13.86  | 16                     |
| 3               | 64QAM | 1  | 8  | 13.91  | 13.91  | 13.92  |                        |
| 3               | 64QAM | 1  | 14 | 13.95  | 13.98  | 13.91  |                        |
| 3               | 64QAM | 8  | 0  | 12.74  | 12.82  | 12.63  | 16                     |
| 3               | 64QAM | 8  | 4  | 12.82  | 12.62  | 12.73  |                        |
| 3               | 64QAM | 8  | 7  | 12.58  | 12.67  | 12.57  |                        |
| 3               | 64QAM | 15 | 0  | 12.66  | 12.63  | 12.69  |                        |
| Channel         |       |    |    | 131979 | 132322 | 132665 | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 1710.7 | 1745   | 1779.3 |                        |
| 1.4             | QPSK  | 1  | 0  | 15.49  | 15.63  | 15.38  | 16                     |
| 1.4             | QPSK  | 1  | 3  | 15.46  | 15.41  | 15.27  |                        |
| 1.4             | QPSK  | 1  | 5  | 15.38  | 15.42  | 15.34  |                        |
| 1.4             | QPSK  | 3  | 0  | 14.67  | 14.69  | 14.47  | 16                     |
| 1.4             | QPSK  | 3  | 1  | 14.48  | 14.48  | 14.38  |                        |
| 1.4             | QPSK  | 3  | 3  | 14.44  | 14.49  | 14.30  |                        |
| 1.4             | QPSK  | 6  | 0  | 14.47  | 14.49  | 14.51  | 16                     |
| 1.4             | 16QAM | 1  | 0  | 14.98  | 14.80  | 14.84  |                        |
| 1.4             | 16QAM | 1  | 3  | 14.83  | 14.99  | 14.65  |                        |
| 1.4             | 16QAM | 1  | 5  | 14.86  | 14.96  | 14.64  | 16                     |
| 1.4             | 16QAM | 3  | 0  | 13.56  | 13.71  | 13.49  |                        |
| 1.4             | 16QAM | 3  | 1  | 13.58  | 13.55  | 13.62  |                        |
| 1.4             | 16QAM | 3  | 3  | 13.59  | 13.51  | 13.50  | 16                     |
| 1.4             | 16QAM | 6  | 0  | 13.65  | 13.52  | 13.64  |                        |
| 1.4             | 64QAM | 1  | 0  | 13.98  | 13.95  | 13.89  |                        |
| 1.4             | 64QAM | 1  | 3  | 13.82  | 14.00  | 13.87  | 16                     |
| 1.4             | 64QAM | 1  | 5  | 13.92  | 14.00  | 13.82  |                        |
| 1.4             | 64QAM | 3  | 0  | 13.93  | 13.90  | 13.80  |                        |
| 1.4             | 64QAM | 3  | 1  | 13.76  | 14.00  | 13.82  | 16                     |
| 1.4             | 64QAM | 3  | 3  | 13.85  | 13.96  | 13.83  |                        |
| 1.4             | 64QAM | 6  | 0  | 12.70  | 12.71  | 12.58  |                        |

**<TDD LTE SAR Measurement>**

TDD LTE configuration setup for SAR measurement

SAR was tested with a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by 3GPP.

- 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations
- “special subframe S” contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS
- Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

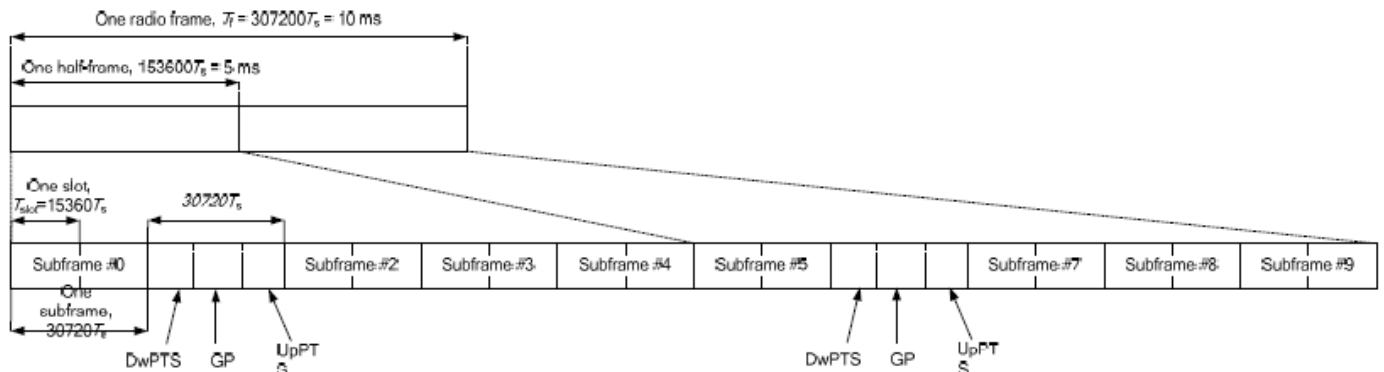


**Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).**

**Table 4.2-2: Uplink-downlink configurations.**

| Uplink-downlink configuration | Downlink-to-Uplink Switch-point periodicity | Subframe number |   |   |   |   |   |   |   |   |   |
|-------------------------------|---------------------------------------------|-----------------|---|---|---|---|---|---|---|---|---|
|                               |                                             | 0               | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 0                             | 5 ms                                        | D               | S | U | U | U | D | S | U | U | U |
| 1                             | 5 ms                                        | D               | S | U | U | D | D | S | U | U | D |
| 2                             | 5 ms                                        | D               | S | U | D | D | D | S | U | D | D |
| 3                             | 10 ms                                       | D               | S | U | U | U | D | D | D | D | D |
| 4                             | 10 ms                                       | D               | S | U | U | D | D | D | D | D | D |
| 5                             | 10 ms                                       | D               | S | U | D | D | D | D | D | D | D |
| 6                             | 5 ms                                        | D               | S | U | U | U | D | S | U | U | D |

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

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

| Special subframe (30720·T <sub>s</sub> ): Normal cyclic prefix in downlink (UpPTS) |                                |                                |                                  |
|------------------------------------------------------------------------------------|--------------------------------|--------------------------------|----------------------------------|
|                                                                                    | Special subframe configuration | Normal cyclic prefix in uplink | Extended cyclic prefix in uplink |
| Uplink duty factor in one special subframe                                         | 0~4                            | 7.13%                          | 8.33%                            |
|                                                                                    | 5~9                            | 14.3%                          | 16.7%                            |

| Special subframe(30720·T <sub>s</sub> ): Extended cyclic prefix in downlink (UpPTS) |                                |                                |                                  |
|-------------------------------------------------------------------------------------|--------------------------------|--------------------------------|----------------------------------|
|                                                                                     | Special subframe configuration | Normal cyclic prefix in uplink | Extended cyclic prefix in uplink |
| Uplink duty factor in one special subframe                                          | 0~3                            | 7.13%                          | 8.33%                            |
|                                                                                     | 4~7                            | 14.3%                          | 16.7%                            |

The highest duty factor is resulted from:

- Uplink-downlink configuration: 0. In a half-frame consisted of 5 subframes, uplink operation is in 3 uplink subframes and 1 special subframe.
- special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink
- for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is:  
 $(3+0.167)/5 = 63.3\%$
- for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is:  
 $(3+0.143)/5 = 62.9\%$
- For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix  $63.3\%/62.9\% = 1.006$  is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)\* Tune-up Scaling Factor\* scaling factor for extended cyclic prefix.



**Standalone mode - Phone WWAN Tx OFF:  
(Head Power mode)**

**<LTE Band 48>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Low Middle Ch. / Freq. | Power High Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) |
|-----------------|------------|---------|-----------|-----------------------|------------------------------|-------------------------------|------------------------|---------------------|
| Channel         |            |         |           | 55340                 | 55830                        | 56150                         | 56640                  |                     |
| Frequency (MHz) |            |         |           | 3560                  | 3609                         | 3641                          | 3690                   |                     |
| 20              | QPSK       | 1       | 0         | 21.60                 | 21.98                        | 22.12                         | 22.16                  | 23.5                |
| 20              | QPSK       | 1       | 49        | 21.57                 | 21.55                        | 21.55                         | 21.60                  |                     |
| 20              | QPSK       | 1       | 99        | 21.62                 | 21.92                        | 22.15                         | 21.96                  |                     |
| 20              | QPSK       | 50      | 0         | 21.09                 | 21.45                        | 21.44                         | 21.55                  | 22.5                |
| 20              | QPSK       | 50      | 24        | 20.93                 | 21.22                        | 21.29                         | 21.29                  |                     |
| 20              | QPSK       | 50      | 50        | 21.15                 | 21.33                        | 21.54                         | 21.46                  |                     |
| 20              | QPSK       | 100     | 0         | 18.60                 | 18.94                        | 19.00                         | 19.00                  | 20.0                |
| 20              | 16QAM      | 1       | 0         | 20.97                 | 21.33                        | 21.47                         | 21.50                  | 22.5                |
| 20              | 16QAM      | 1       | 49        | 20.55                 | 20.87                        | 21.03                         | 20.99                  |                     |
| 20              | 16QAM      | 1       | 99        | 21.05                 | 21.32                        | 21.49                         | 21.38                  |                     |
| 20              | 16QAM      | 50      | 0         | 20.15                 | 20.57                        | 20.53                         | 20.58                  | 21.5                |
| 20              | 16QAM      | 50      | 24        | 19.99                 | 20.31                        | 20.43                         | 20.33                  |                     |
| 20              | 16QAM      | 50      | 50        | 20.19                 | 20.45                        | 20.61                         | 20.49                  |                     |
| 20              | 16QAM      | 100     | 0         | 17.66                 | 18.02                        | 18.08                         | 18.06                  | 19.0                |
| 20              | 64QAM      | 1       | 0         | 19.78                 | 20.15                        | 20.25                         | 20.30                  | 21.5                |
| 20              | 64QAM      | 1       | 49        | 19.54                 | 19.66                        | 19.97                         | 19.77                  |                     |
| 20              | 64QAM      | 1       | 99        | 19.77                 | 20.14                        | 20.28                         | 20.14                  |                     |
| 20              | 64QAM      | 50      | 0         | 19.18                 | 19.54                        | 19.53                         | 19.57                  | 20.5                |
| 20              | 64QAM      | 50      | 24        | 18.97                 | 19.28                        | 19.40                         | 19.38                  |                     |
| 20              | 64QAM      | 50      | 50        | 19.17                 | 19.45                        | 19.62                         | 19.49                  |                     |
| 20              | 64QAM      | 100     | 0         | 16.67                 | 17.02                        | 17.11                         | 17.08                  | 18.0                |
| Channel         |            |         |           | 55315                 | 55820                        | 56160                         | 56665                  | Tune-up limit (dBm) |
| Frequency (MHz) |            |         |           | 3557.5                | 3608                         | 3642                          | 3692.5                 |                     |
| 15              | QPSK       | 1       | 0         | 21.57                 | 21.93                        | 22.03                         | 22.05                  | 23.5                |
| 15              | QPSK       | 1       | 37        | 21.58                 | 21.50                        | 21.55                         | 21.52                  |                     |
| 15              | QPSK       | 1       | 74        | 21.58                 | 21.91                        | 22.01                         | 22.00                  |                     |
| 15              | QPSK       | 36      | 0         | 20.91                 | 21.33                        | 21.36                         | 21.35                  | 22.5                |
| 15              | QPSK       | 36      | 20        | 20.82                 | 21.19                        | 21.26                         | 21.21                  |                     |
| 15              | QPSK       | 36      | 39        | 20.95                 | 21.23                        | 21.38                         | 21.28                  |                     |
| 15              | QPSK       | 75      | 0         | 19.41                 | 19.40                        | 19.49                         | 19.45                  | 21.0                |
| 15              | 16QAM      | 1       | 0         | 20.90                 | 21.31                        | 21.43                         | 21.42                  | 22.5                |
| 15              | 16QAM      | 1       | 37        | 20.58                 | 20.77                        | 20.80                         | 20.97                  |                     |
| 15              | 16QAM      | 1       | 74        | 20.90                 | 21.30                        | 21.39                         | 21.31                  |                     |
| 15              | 16QAM      | 36      | 0         | 19.90                 | 20.34                        | 20.36                         | 20.37                  | 21.5                |
| 15              | 16QAM      | 36      | 20        | 19.87                 | 20.21                        | 20.30                         | 20.25                  |                     |
| 15              | 16QAM      | 36      | 39        | 19.95                 | 20.25                        | 20.39                         | 20.31                  |                     |
| 15              | 16QAM      | 75      | 0         | 18.50                 | 18.40                        | 18.45                         | 18.48                  | 20.0                |
| 15              | 64QAM      | 1       | 0         | 19.71                 | 20.11                        | 20.22                         | 20.23                  | 21.5                |
| 15              | 64QAM      | 1       | 37        | 19.57                 | 19.59                        | 19.70                         | 19.75                  |                     |
| 15              | 64QAM      | 1       | 74        | 19.77                 | 20.12                        | 20.21                         | 20.12                  |                     |
| 15              | 64QAM      | 36      | 0         | 19.58                 | 19.98                        | 20.00                         | 20.00                  | 20.5                |
| 15              | 64QAM      | 36      | 20        | 19.55                 | 19.83                        | 19.92                         | 19.89                  |                     |
| 15              | 64QAM      | 36      | 39        | 19.50                 | 19.89                        | 20.04                         | 19.96                  |                     |
| 15              | 64QAM      | 75      | 0         | 17.30                 | 17.39                        | 17.47                         | 17.43                  | 19.0                |



| Channel         |       |    |    | 55290  | 55815  | 56165  | 56690  | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|--------|--------|--------|------------------------|
| Frequency (MHz) |       |    |    | 3555   | 3607.5 | 3642.5 | 3695   |                        |
| 10              | QPSK  | 1  | 0  | 21.95  | 22.38  | 22.45  | 22.48  | 23.5                   |
| 10              | QPSK  | 1  | 25 | 21.35  | 21.71  | 21.84  | 21.86  |                        |
| 10              | QPSK  | 1  | 49 | 22.13  | 22.48  | 22.49  | 22.48  |                        |
| 10              | QPSK  | 25 | 0  | 20.74  | 21.09  | 21.23  | 21.18  | 22.5                   |
| 10              | QPSK  | 25 | 12 | 20.72  | 21.02  | 21.09  | 21.02  |                        |
| 10              | QPSK  | 25 | 25 | 20.87  | 21.22  | 21.33  | 21.24  |                        |
| 10              | QPSK  | 50 | 0  | 20.84  | 21.22  | 21.27  | 21.19  |                        |
| 10              | 16QAM | 1  | 0  | 21.27  | 21.70  | 21.78  | 21.83  | 22.5                   |
| 10              | 16QAM | 1  | 25 | 20.70  | 21.15  | 21.22  | 21.09  |                        |
| 10              | 16QAM | 1  | 49 | 21.50  | 21.90  | 21.97  | 21.94  |                        |
| 10              | 16QAM | 25 | 0  | 19.76  | 20.18  | 20.27  | 20.26  | 21.5                   |
| 10              | 16QAM | 25 | 12 | 19.73  | 20.07  | 20.13  | 20.03  |                        |
| 10              | 16QAM | 25 | 25 | 19.89  | 20.31  | 20.35  | 20.29  |                        |
| 10              | 16QAM | 50 | 0  | 19.87  | 20.31  | 20.35  | 20.30  |                        |
| 10              | 64QAM | 1  | 0  | 20.15  | 20.56  | 20.62  | 20.65  | 21.5                   |
| 10              | 64QAM | 1  | 25 | 19.57  | 19.96  | 19.93  | 20.01  |                        |
| 10              | 64QAM | 1  | 49 | 20.40  | 20.78  | 20.77  | 20.73  |                        |
| 10              | 64QAM | 25 | 0  | 18.88  | 19.33  | 19.31  | 19.33  | 20.5                   |
| 10              | 64QAM | 25 | 12 | 18.79  | 19.25  | 19.19  | 19.20  |                        |
| 10              | 64QAM | 25 | 25 | 19.00  | 19.40  | 19.40  | 19.41  |                        |
| 10              | 64QAM | 50 | 0  | 18.90  | 19.34  | 19.31  | 19.27  |                        |
| Channel         |       |    |    | 55265  | 55810  | 56170  | 56715  | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 3552.5 | 3607   | 3643   | 3697.5 |                        |
| 5               | QPSK  | 1  | 0  | 21.44  | 21.84  | 21.91  | 21.88  | 23.5                   |
| 5               | QPSK  | 1  | 12 | 21.37  | 21.80  | 21.90  | 21.76  |                        |
| 5               | QPSK  | 1  | 24 | 21.55  | 21.98  | 22.02  | 21.92  |                        |
| 5               | QPSK  | 12 | 0  | 20.51  | 20.93  | 20.98  | 20.97  | 22.5                   |
| 5               | QPSK  | 12 | 7  | 20.54  | 21.02  | 20.94  | 21.01  |                        |
| 5               | QPSK  | 12 | 13 | 20.63  | 21.02  | 21.09  | 21.01  |                        |
| 5               | QPSK  | 25 | 0  | 20.53  | 21.03  | 21.03  | 20.98  |                        |
| 5               | 16QAM | 1  | 0  | 20.72  | 21.11  | 21.26  | 21.80  | 22.5                   |
| 5               | 16QAM | 1  | 12 | 20.59  | 21.14  | 21.21  | 21.13  |                        |
| 5               | 16QAM | 1  | 24 | 20.82  | 21.28  | 21.36  | 21.35  |                        |
| 5               | 16QAM | 12 | 0  | 19.54  | 20.03  | 20.03  | 20.05  | 21.5                   |
| 5               | 16QAM | 12 | 7  | 19.67  | 19.91  | 20.10  | 20.01  |                        |
| 5               | 16QAM | 12 | 13 | 19.63  | 20.04  | 20.17  | 20.05  |                        |
| 5               | 16QAM | 25 | 0  | 19.64  | 20.05  | 20.13  | 20.05  |                        |
| 5               | 64QAM | 1  | 0  | 19.63  | 20.03  | 20.15  | 20.14  | 21.5                   |
| 5               | 64QAM | 1  | 12 | 19.48  | 19.98  | 20.09  | 19.99  |                        |
| 5               | 64QAM | 1  | 24 | 19.75  | 20.21  | 20.35  | 20.18  |                        |
| 5               | 64QAM | 12 | 0  | 18.80  | 19.00  | 19.15  | 19.11  | 20.5                   |
| 5               | 64QAM | 12 | 7  | 18.77  | 19.03  | 19.15  | 19.12  |                        |
| 5               | 64QAM | 12 | 13 | 18.75  | 19.07  | 19.22  | 19.08  |                        |
| 5               | 64QAM | 25 | 0  | 18.71  | 18.98  | 19.16  | 19.11  |                        |



**Standalone mode - Phone WWAN Tx OFF:  
(Hotspot / Body-worn / Product Specific Power mode)**

**<LTE Band 48>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Low Middle<br>Ch. / Freq. | Power High Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) |
|-----------------|------------|---------|-----------|--------------------------|---------------------------------|----------------------------------|---------------------------|------------------------|
| Channel         |            |         |           | 55340                    | 55830                           | 56150                            | 56640                     |                        |
| Frequency (MHz) |            |         |           | 3560                     | 3609                            | 3641                             | 3690                      |                        |
| 20              | QPSK       | 1       | 0         | 20.52                    | 20.57                           | 20.48                            | 20.90                     | 22                     |
| 20              | QPSK       | 1       | 49        | 20.48                    | 20.37                           | 20.48                            | 20.57                     |                        |
| 20              | QPSK       | 1       | 99        | 20.80                    | 20.61                           | 20.56                            | 20.54                     |                        |
| 20              | QPSK       | 50      | 0         | 20.11                    | 20.36                           | 20.40                            | 20.58                     | 22                     |
| 20              | QPSK       | 50      | 24        | 20.38                    | 20.31                           | 20.36                            | 20.50                     |                        |
| 20              | QPSK       | 50      | 50        | 20.28                    | 20.25                           | 20.32                            | 20.43                     |                        |
| 20              | QPSK       | 100     | 0         | 18.60                    | 18.94                           | 19.00                            | 19.00                     | 20                     |
| 20              | 16QAM      | 1       | 0         | 20.50                    | 20.53                           | 20.44                            | 20.67                     | 22                     |
| 20              | 16QAM      | 1       | 49        | 20.22                    | 20.46                           | 20.41                            | 20.63                     |                        |
| 20              | 16QAM      | 1       | 99        | 20.09                    | 20.40                           | 20.42                            | 20.46                     |                        |
| 20              | 16QAM      | 50      | 0         | 19.62                    | 19.67                           | 19.68                            | 19.91                     | 21.5                   |
| 20              | 16QAM      | 50      | 24        | 19.59                    | 19.62                           | 19.68                            | 19.80                     |                        |
| 20              | 16QAM      | 50      | 50        | 19.65                    | 19.59                           | 19.67                            | 19.79                     |                        |
| 20              | 16QAM      | 100     | 0         | 17.66                    | 18.02                           | 18.08                            | 18.06                     | 19                     |
| 20              | 64QAM      | 1       | 0         | 19.71                    | 19.60                           | 19.70                            | 19.70                     | 21.5                   |
| 20              | 64QAM      | 1       | 49        | 19.65                    | 19.57                           | 19.46                            | 19.62                     |                        |
| 20              | 64QAM      | 1       | 99        | 19.61                    | 19.55                           | 19.53                            | 19.46                     |                        |
| 20              | 64QAM      | 50      | 0         | 18.79                    | 18.60                           | 18.75                            | 18.79                     | 20.5                   |
| 20              | 64QAM      | 50      | 24        | 18.76                    | 18.73                           | 18.56                            | 18.75                     |                        |
| 20              | 64QAM      | 50      | 50        | 18.78                    | 18.73                           | 18.73                            | 18.76                     |                        |
| 20              | 64QAM      | 100     | 0         | 16.67                    | 17.02                           | 17.11                            | 17.08                     | 18                     |
| Channel         |            |         |           | 55315                    | 55820                           | 56160                            | 56665                     | Tune-up limit<br>(dBm) |
| Frequency (MHz) |            |         |           | 3557.5                   | 3608                            | 3642                             | 3692.5                    |                        |
| 15              | QPSK       | 1       | 0         | 20.48                    | 20.43                           | 20.38                            | 20.52                     | 22                     |
| 15              | QPSK       | 1       | 37        | 20.40                    | 20.31                           | 20.44                            | 20.51                     |                        |
| 15              | QPSK       | 1       | 74        | 20.82                    | 20.46                           | 20.56                            | 20.47                     |                        |
| 15              | QPSK       | 36      | 0         | 20.09                    | 20.25                           | 20.29                            | 20.46                     | 22                     |
| 15              | QPSK       | 36      | 20        | 20.21                    | 20.05                           | 20.08                            | 20.30                     |                        |
| 15              | QPSK       | 36      | 39        | 20.01                    | 20.08                           | 20.21                            | 20.18                     |                        |
| 15              | QPSK       | 75      | 0         | 18.41                    | 18.80                           | 18.90                            | 18.85                     | 21                     |
| 15              | 16QAM      | 1       | 0         | 20.17                    | 20.25                           | 20.13                            | 20.27                     | 22                     |
| 15              | 16QAM      | 1       | 37        | 20.13                    | 20.17                           | 20.06                            | 20.27                     |                        |
| 15              | 16QAM      | 1       | 74        | 20.05                    | 20.06                           | 20.09                            | 20.09                     |                        |
| 15              | 16QAM      | 36      | 0         | 19.60                    | 19.66                           | 19.77                            | 19.95                     | 21.5                   |
| 15              | 16QAM      | 36      | 20        | 19.69                    | 19.60                           | 19.77                            | 19.80                     |                        |
| 15              | 16QAM      | 36      | 39        | 19.74                    | 19.67                           | 19.74                            | 19.86                     |                        |
| 15              | 16QAM      | 75      | 0         | 18.00                    | 18.40                           | 18.45                            | 18.41                     | 20                     |
| 15              | 64QAM      | 1       | 0         | 19.61                    | 19.71                           | 19.66                            | 19.75                     | 21.5                   |
| 15              | 64QAM      | 1       | 37        | 19.69                    | 19.67                           | 19.65                            | 19.72                     |                        |
| 15              | 64QAM      | 1       | 74        | 19.64                    | 19.69                           | 19.64                            | 19.71                     |                        |
| 15              | 64QAM      | 36      | 0         | 18.61                    | 18.64                           | 18.60                            | 18.60                     | 20.5                   |
| 15              | 64QAM      | 36      | 20        | 18.76                    | 18.64                           | 18.57                            | 18.67                     |                        |
| 15              | 64QAM      | 36      | 39        | 18.65                    | 18.63                           | 18.59                            | 18.62                     |                        |
| 15              | 64QAM      | 75      | 0         | 17.00                    | 17.39                           | 17.47                            | 17.43                     | 19                     |



| Channel         |       |    |    | 55290  | 55815  | 56165  | 56690  | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|--------|--------|--------|------------------------|
| Frequency (MHz) |       |    |    | 3555   | 3607.5 | 3642.5 | 3695   |                        |
| 10              | QPSK  | 1  | 0  | 20.39  | 20.51  | 20.47  | 20.58  | 22                     |
| 10              | QPSK  | 1  | 25 | 20.39  | 20.23  | 20.34  | 20.43  |                        |
| 10              | QPSK  | 1  | 49 | 20.84  | 20.43  | 20.36  | 20.37  |                        |
| 10              | QPSK  | 25 | 0  | 20.05  | 20.34  | 20.40  | 20.50  | 22                     |
| 10              | QPSK  | 25 | 12 | 20.30  | 20.16  | 20.18  | 20.48  |                        |
| 10              | QPSK  | 25 | 25 | 20.16  | 20.17  | 20.26  | 20.39  |                        |
| 10              | QPSK  | 50 | 0  | 20.18  | 20.10  | 20.16  | 20.32  | 22                     |
| 10              | 16QAM | 1  | 0  | 20.53  | 20.52  | 20.39  | 20.73  |                        |
| 10              | 16QAM | 1  | 25 | 20.17  | 20.56  | 20.38  | 20.72  |                        |
| 10              | 16QAM | 1  | 49 | 20.04  | 20.32  | 20.39  | 20.53  | 21.5                   |
| 10              | 16QAM | 25 | 0  | 19.68  | 19.63  | 19.76  | 19.89  |                        |
| 10              | 16QAM | 25 | 12 | 19.65  | 19.55  | 19.62  | 19.70  |                        |
| 10              | 16QAM | 25 | 25 | 19.67  | 19.63  | 19.65  | 19.83  | 21.5                   |
| 10              | 16QAM | 50 | 0  | 19.58  | 19.74  | 19.85  | 19.99  |                        |
| 10              | 64QAM | 1  | 0  | 19.63  | 19.61  | 19.76  | 19.80  |                        |
| 10              | 64QAM | 1  | 25 | 19.69  | 19.65  | 19.65  | 19.58  | 21.5                   |
| 10              | 64QAM | 1  | 49 | 19.66  | 19.53  | 19.52  | 19.66  |                        |
| 10              | 64QAM | 25 | 0  | 18.63  | 18.77  | 18.78  | 18.67  |                        |
| 10              | 64QAM | 25 | 12 | 18.57  | 18.67  | 18.67  | 18.56  | 20.5                   |
| 10              | 64QAM | 25 | 25 | 18.74  | 18.60  | 18.63  | 18.58  |                        |
| 10              | 64QAM | 50 | 0  | 18.99  | 18.87  | 18.98  | 18.88  |                        |
| Channel         |       |    |    | 55265  | 55810  | 56170  | 56715  | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 3552.5 | 3607   | 3643   | 3697.5 |                        |
| 5               | QPSK  | 1  | 0  | 20.41  | 20.56  | 20.39  | 20.62  | 22                     |
| 5               | QPSK  | 1  | 12 | 20.41  | 20.28  | 20.30  | 20.55  |                        |
| 5               | QPSK  | 1  | 24 | 20.74  | 20.43  | 20.36  | 20.34  |                        |
| 5               | QPSK  | 12 | 0  | 20.10  | 20.19  | 20.39  | 20.56  | 22                     |
| 5               | QPSK  | 12 | 7  | 20.24  | 20.12  | 20.34  | 20.45  |                        |
| 5               | QPSK  | 12 | 13 | 20.10  | 20.20  | 20.30  | 20.37  |                        |
| 5               | QPSK  | 25 | 0  | 20.34  | 20.30  | 20.40  | 20.42  | 22                     |
| 5               | 16QAM | 1  | 0  | 20.37  | 20.38  | 20.41  | 20.64  |                        |
| 5               | 16QAM | 1  | 12 | 20.10  | 20.29  | 20.34  | 20.62  |                        |
| 5               | 16QAM | 1  | 24 | 20.05  | 20.27  | 20.36  | 20.36  | 21.5                   |
| 5               | 16QAM | 12 | 0  | 19.64  | 19.58  | 19.74  | 19.87  |                        |
| 5               | 16QAM | 12 | 7  | 19.60  | 19.60  | 19.61  | 19.79  |                        |
| 5               | 16QAM | 12 | 13 | 19.70  | 19.55  | 19.64  | 19.77  | 21.5                   |
| 5               | 16QAM | 25 | 0  | 19.51  | 19.63  | 19.70  | 19.92  |                        |
| 5               | 64QAM | 1  | 0  | 19.76  | 19.77  | 19.81  | 19.70  |                        |
| 5               | 64QAM | 1  | 12 | 19.64  | 19.73  | 19.58  | 19.67  | 21.5                   |
| 5               | 64QAM | 1  | 24 | 19.68  | 19.58  | 19.55  | 19.67  |                        |
| 5               | 64QAM | 12 | 0  | 18.54  | 18.63  | 18.71  | 18.65  |                        |
| 5               | 64QAM | 12 | 7  | 18.62  | 18.55  | 18.66  | 18.65  | 20.5                   |
| 5               | 64QAM | 12 | 13 | 18.72  | 18.58  | 18.70  | 18.68  |                        |
| 5               | 64QAM | 25 | 0  | 18.92  | 18.94  | 18.86  | 18.92  |                        |



**Simultaneous transmission mode- Phone WWAN Tx ON:  
(Head / Hotspot / Body-worn / Product Specific Power mode)**

**<LTE Band 48>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low<br>Ch. / Freq. | Power Low Middle<br>Ch. / Freq. | Power High Middle<br>Ch. / Freq. | Power High<br>Ch. / Freq. | Tune-up limit<br>(dBm) |
|-----------------|------------|---------|-----------|--------------------------|---------------------------------|----------------------------------|---------------------------|------------------------|
| Channel         |            |         |           | 55340                    | 55830                           | 56150                            | 56640                     |                        |
| Frequency (MHz) |            |         |           | 3560                     | 3609                            | 3641                             | 3690                      |                        |
| 20              | QPSK       | 1       | 0         | 20.52                    | 20.57                           | 20.48                            | 20.90                     | 22                     |
| 20              | QPSK       | 1       | 49        | 20.48                    | 20.37                           | 20.48                            | 20.57                     |                        |
| 20              | QPSK       | 1       | 99        | 20.80                    | 20.61                           | 20.56                            | 20.54                     |                        |
| 20              | QPSK       | 50      | 0         | 20.11                    | 20.36                           | 20.40                            | 20.58                     | 22                     |
| 20              | QPSK       | 50      | 24        | 20.38                    | 20.31                           | 20.36                            | 20.50                     |                        |
| 20              | QPSK       | 50      | 50        | 20.28                    | 20.25                           | 20.32                            | 20.43                     |                        |
| 20              | QPSK       | 100     | 0         | 18.60                    | 18.94                           | 19.00                            | 19.00                     | 20                     |
| 20              | 16QAM      | 1       | 0         | 20.50                    | 20.53                           | 20.44                            | 20.67                     | 22                     |
| 20              | 16QAM      | 1       | 49        | 20.22                    | 20.46                           | 20.41                            | 20.63                     |                        |
| 20              | 16QAM      | 1       | 99        | 20.09                    | 20.40                           | 20.42                            | 20.46                     |                        |
| 20              | 16QAM      | 50      | 0         | 19.62                    | 19.67                           | 19.68                            | 19.91                     | 21.5                   |
| 20              | 16QAM      | 50      | 24        | 19.59                    | 19.62                           | 19.68                            | 19.80                     |                        |
| 20              | 16QAM      | 50      | 50        | 19.65                    | 19.59                           | 19.67                            | 19.79                     |                        |
| 20              | 16QAM      | 100     | 0         | 17.66                    | 18.02                           | 18.08                            | 18.06                     | 19                     |
| 20              | 64QAM      | 1       | 0         | 19.71                    | 19.60                           | 19.70                            | 19.70                     | 21.5                   |
| 20              | 64QAM      | 1       | 49        | 19.65                    | 19.57                           | 19.46                            | 19.62                     |                        |
| 20              | 64QAM      | 1       | 99        | 19.61                    | 19.55                           | 19.53                            | 19.46                     |                        |
| 20              | 64QAM      | 50      | 0         | 18.79                    | 18.60                           | 18.75                            | 18.79                     | 20.5                   |
| 20              | 64QAM      | 50      | 24        | 18.76                    | 18.73                           | 18.56                            | 18.75                     |                        |
| 20              | 64QAM      | 50      | 50        | 18.78                    | 18.73                           | 18.73                            | 18.76                     |                        |
| 20              | 64QAM      | 100     | 0         | 16.67                    | 17.02                           | 17.11                            | 17.08                     | 18                     |
| Channel         |            |         |           | 55315                    | 55820                           | 56160                            | 56665                     | Tune-up limit<br>(dBm) |
| Frequency (MHz) |            |         |           | 3557.5                   | 3608                            | 3642                             | 3692.5                    |                        |
| 15              | QPSK       | 1       | 0         | 20.48                    | 20.43                           | 20.38                            | 20.52                     | 22                     |
| 15              | QPSK       | 1       | 37        | 20.40                    | 20.31                           | 20.44                            | 20.51                     |                        |
| 15              | QPSK       | 1       | 74        | 20.82                    | 20.46                           | 20.56                            | 20.47                     |                        |
| 15              | QPSK       | 36      | 0         | 20.09                    | 20.25                           | 20.29                            | 20.46                     | 22                     |
| 15              | QPSK       | 36      | 20        | 20.21                    | 20.05                           | 20.08                            | 20.30                     |                        |
| 15              | QPSK       | 36      | 39        | 20.01                    | 20.08                           | 20.21                            | 20.18                     |                        |
| 15              | QPSK       | 75      | 0         | 18.41                    | 18.80                           | 18.90                            | 18.85                     | 21                     |
| 15              | 16QAM      | 1       | 0         | 20.17                    | 20.25                           | 20.13                            | 20.27                     | 22                     |
| 15              | 16QAM      | 1       | 37        | 20.13                    | 20.17                           | 20.06                            | 20.27                     |                        |
| 15              | 16QAM      | 1       | 74        | 20.05                    | 20.06                           | 20.09                            | 20.09                     |                        |
| 15              | 16QAM      | 36      | 0         | 19.60                    | 19.66                           | 19.77                            | 19.95                     | 21.5                   |
| 15              | 16QAM      | 36      | 20        | 19.69                    | 19.60                           | 19.77                            | 19.80                     |                        |
| 15              | 16QAM      | 36      | 39        | 19.74                    | 19.67                           | 19.74                            | 19.86                     |                        |
| 15              | 16QAM      | 75      | 0         | 18.00                    | 18.40                           | 18.45                            | 18.41                     | 20                     |
| 15              | 64QAM      | 1       | 0         | 19.61                    | 19.71                           | 19.66                            | 19.75                     | 21.5                   |
| 15              | 64QAM      | 1       | 37        | 19.69                    | 19.67                           | 19.65                            | 19.72                     |                        |
| 15              | 64QAM      | 1       | 74        | 19.64                    | 19.69                           | 19.64                            | 19.71                     |                        |
| 15              | 64QAM      | 36      | 0         | 18.61                    | 18.64                           | 18.60                            | 18.60                     | 20.5                   |
| 15              | 64QAM      | 36      | 20        | 18.76                    | 18.64                           | 18.57                            | 18.67                     |                        |
| 15              | 64QAM      | 36      | 39        | 18.65                    | 18.63                           | 18.59                            | 18.62                     |                        |
| 15              | 64QAM      | 75      | 0         | 17.00                    | 17.39                           | 17.47                            | 17.43                     | 19                     |



| Channel         |       |    |    | 55290  | 55815  | 56165  | 56690  | Tune-up limit<br>(dBm) |
|-----------------|-------|----|----|--------|--------|--------|--------|------------------------|
| Frequency (MHz) |       |    |    | 3555   | 3607.5 | 3642.5 | 3695   |                        |
| 10              | QPSK  | 1  | 0  | 20.39  | 20.51  | 20.47  | 20.58  | 22                     |
| 10              | QPSK  | 1  | 25 | 20.39  | 20.23  | 20.34  | 20.43  |                        |
| 10              | QPSK  | 1  | 49 | 20.84  | 20.43  | 20.36  | 20.37  |                        |
| 10              | QPSK  | 25 | 0  | 20.05  | 20.34  | 20.40  | 20.50  | 22                     |
| 10              | QPSK  | 25 | 12 | 20.30  | 20.16  | 20.18  | 20.48  |                        |
| 10              | QPSK  | 25 | 25 | 20.16  | 20.17  | 20.26  | 20.39  |                        |
| 10              | QPSK  | 50 | 0  | 20.18  | 20.10  | 20.16  | 20.32  | 22                     |
| 10              | 16QAM | 1  | 0  | 20.53  | 20.52  | 20.39  | 20.73  |                        |
| 10              | 16QAM | 1  | 25 | 20.17  | 20.56  | 20.38  | 20.72  |                        |
| 10              | 16QAM | 1  | 49 | 20.04  | 20.32  | 20.39  | 20.53  | 21.5                   |
| 10              | 16QAM | 25 | 0  | 19.68  | 19.63  | 19.76  | 19.89  |                        |
| 10              | 16QAM | 25 | 12 | 19.65  | 19.55  | 19.62  | 19.70  |                        |
| 10              | 16QAM | 25 | 25 | 19.67  | 19.63  | 19.65  | 19.83  | 21.5                   |
| 10              | 16QAM | 50 | 0  | 19.58  | 19.74  | 19.85  | 19.99  |                        |
| 10              | 64QAM | 1  | 0  | 19.63  | 19.61  | 19.76  | 19.80  |                        |
| 10              | 64QAM | 1  | 25 | 19.69  | 19.65  | 19.65  | 19.58  | 21.5                   |
| 10              | 64QAM | 1  | 49 | 19.66  | 19.53  | 19.52  | 19.66  |                        |
| 10              | 64QAM | 25 | 0  | 18.63  | 18.77  | 18.78  | 18.67  |                        |
| 10              | 64QAM | 25 | 12 | 18.57  | 18.67  | 18.67  | 18.56  | 20.5                   |
| 10              | 64QAM | 25 | 25 | 18.74  | 18.60  | 18.63  | 18.58  |                        |
| 10              | 64QAM | 50 | 0  | 18.99  | 18.87  | 18.98  | 18.88  |                        |
| Channel         |       |    |    | 55265  | 55810  | 56170  | 56715  | Tune-up limit<br>(dBm) |
| Frequency (MHz) |       |    |    | 3552.5 | 3607   | 3643   | 3697.5 |                        |
| 5               | QPSK  | 1  | 0  | 20.41  | 20.56  | 20.39  | 20.62  | 22                     |
| 5               | QPSK  | 1  | 12 | 20.41  | 20.28  | 20.30  | 20.55  |                        |
| 5               | QPSK  | 1  | 24 | 20.74  | 20.43  | 20.36  | 20.34  |                        |
| 5               | QPSK  | 12 | 0  | 20.10  | 20.19  | 20.39  | 20.56  | 22                     |
| 5               | QPSK  | 12 | 7  | 20.24  | 20.12  | 20.34  | 20.45  |                        |
| 5               | QPSK  | 12 | 13 | 20.10  | 20.20  | 20.30  | 20.37  |                        |
| 5               | QPSK  | 25 | 0  | 20.34  | 20.30  | 20.40  | 20.42  | 22                     |
| 5               | 16QAM | 1  | 0  | 20.37  | 20.38  | 20.41  | 20.64  |                        |
| 5               | 16QAM | 1  | 12 | 20.10  | 20.29  | 20.34  | 20.62  |                        |
| 5               | 16QAM | 1  | 24 | 20.05  | 20.27  | 20.36  | 20.36  | 21.5                   |
| 5               | 16QAM | 12 | 0  | 19.64  | 19.58  | 19.74  | 19.87  |                        |
| 5               | 16QAM | 12 | 7  | 19.60  | 19.60  | 19.61  | 19.79  |                        |
| 5               | 16QAM | 12 | 13 | 19.70  | 19.55  | 19.64  | 19.77  | 21.5                   |
| 5               | 16QAM | 25 | 0  | 19.51  | 19.63  | 19.70  | 19.92  |                        |
| 5               | 64QAM | 1  | 0  | 19.76  | 19.77  | 19.81  | 19.70  |                        |
| 5               | 64QAM | 1  | 12 | 19.64  | 19.73  | 19.58  | 19.67  | 21.5                   |
| 5               | 64QAM | 1  | 24 | 19.68  | 19.58  | 19.55  | 19.67  |                        |
| 5               | 64QAM | 12 | 0  | 18.54  | 18.63  | 18.71  | 18.65  |                        |
| 5               | 64QAM | 12 | 7  | 18.62  | 18.55  | 18.66  | 18.65  | 20.5                   |
| 5               | 64QAM | 12 | 13 | 18.72  | 18.58  | 18.70  | 18.68  |                        |
| 5               | 64QAM | 25 | 0  | 18.92  | 18.94  | 18.86  | 18.92  |                        |



## <LTE Carrier Aggregation combinations>

### General Note:

1. This device supports Carrier Aggregation on downlink only for inter and intra band, Uplink CA is not supported. For the device supports combination bands and configurations are according to 3GPP.
2. In applying the existing power measurement procedure of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of the frequency band and CCs in each row need consideration, and that configurations require power measurement should be highlighted in the below table.
3. The LTE B46 is Rx only

| 2CC Downlink Carrier Aggregation |             |          |             |                                 | 3CC Downlink Carrier Aggregation |             |             |             |                                 |
|----------------------------------|-------------|----------|-------------|---------------------------------|----------------------------------|-------------|-------------|-------------|---------------------------------|
| Number                           | Combination | 4X4 MIMO | Restriction | Covered by Measurement Superset | Number                           | Combination | 4X4 MIMO    | Restriction | Covered by Measurement Superset |
| 1                                | 2A-2A       | 2A-2A    |             | 3CC-27                          | 27                               | 2A-2A-4A    | 2A-2A-4A    |             | 4CC-83                          |
| 2                                | 2A-4A       | 2A-4A    |             | 3CC-31                          | 28                               | 2A-2A-5A    | 2A-2A       |             | 4CC-85                          |
| 3                                | 2A-5A       | 2A       |             | 3CC-28                          | 29                               | 2A-2A-13A   | 2A-2A       |             | 4CC-86                          |
| 4                                | 2A-13A      | 2A       |             | 3CC-29                          | 30                               | 2A-2A-66A   | 2A-2A-66A   |             | 4CC-89                          |
| 5                                | 2A-46A      | 2A       | 46 only RX  | 5CC-153                         | 31                               | 2A-4A-4A    | 2A-4A-4A    |             | 4CC-83                          |
| 6                                | 2A-66A      | 2A-66A   |             | 3CC-44                          | 32                               | 2A-4A-5A    | 2A-4A       |             | 4CC-84                          |
| 7                                | 4A-4A       | 4A-4A    |             | 3CC-45                          | 33                               | 2A-4A-13A   | 2A-4A       |             |                                 |
| 8                                | 4A-5A       | 4A       |             | 3CC-45                          | 34                               | 2A-5B       | 2A          |             | 4CC-114                         |
| 9                                | 4A-13A      | 4A       |             | 3CC-46                          | 35                               | 2A-5A-46A   | 2A          | 46 only RX  |                                 |
| 10                               | 4A-46A      | 4A       | 46 only RX  | 5CC-154                         | 36                               | 2A-5A-66A   |             |             | 4CC-85                          |
| 11                               | 4A-48A      |          |             | 5CC-200                         | 37                               | 2A-13A-46A  | 2A          | 46 only RX  |                                 |
| 12                               | 5B          |          |             | 4CC-103                         | 38                               | 2A-13A-66A  |             |             | 4CC-86                          |
| 13                               | 5A-5A       |          |             | 3CC-51                          | 39                               | 2A-46C      | 2A          | 46 only RX  | 4CC-87                          |
| 14                               | 5A-48A      | 48A      |             |                                 | 40                               | 2A-46A-46A  | 2A          | 46 only RX  |                                 |
| 15                               | 5A-66A      | 66A      |             | 3CC-55                          | 41                               | 2A-46A-66A  | 2A-66A      | 46 only RX  |                                 |
| 16                               | 13A-46A     |          | 46 only RX  | 3CC-57                          | 42                               | 2A-66C      | 2A-66C      |             | 4CC-88                          |
| 17                               | 13A-66A     | 66A      |             | 3CC-60                          | 43                               | 2A-66B      | 2A-66B      |             | 4CC-111                         |
| 18                               | 66A-46A     | 66A      | 46 only RX  | 3CC-62                          | 44                               | 2A-66A-66A  | 2A-66A-66A  |             | 4CC-89                          |
| 19                               | 66B         | 66B      |             | 3CC-65                          | 45                               | 4A-4A-5A    | 4A-4A       |             | 4CC-112                         |
| 20                               | 66C         | 66C      |             | 3CC-64                          | 46                               | 4A-4A-13A   | 4A-4A       |             |                                 |
| 21                               | 66A-66A     | 66A-66A  |             | 4CC-110                         | 47                               | 4A-46C      | 4A          | 46 only RX  |                                 |
| 22                               | 13A-48A     |          |             | 5CC-159                         | 48                               | 4A-46A-46A  | 4A          | 46 only RX  |                                 |
| 23                               | 48A-66A     |          |             | 3CC-76                          | 49                               | 5B-46A      |             | 46 only RX  |                                 |
| 24                               | 2A-48A      |          |             | 5CC-176                         | 50                               | 5B-66A      | 66A         |             | 4CC-114                         |
| 25                               | 48C         |          |             | 3CC-69                          | 51                               | 5A-5A-66A   | 66A         |             | 4CC-121                         |
| 26                               | 48A-48A     |          |             | 3CC-68                          | 52                               | 5A-66B      | 66B         |             | 4CC-91                          |
|                                  |             |          |             |                                 | 53                               | 5A-66C      | 66C         |             | 4CC-92                          |
|                                  |             |          |             |                                 | 54                               | 5A-46A-66A  | 66A         | 46 only RX  |                                 |
|                                  |             |          |             |                                 | 55                               | 5A-66A-66A  | 66A-66A     |             | 4CC-93                          |
|                                  |             |          |             |                                 | 56                               | 13A-46C     |             | 46 only RX  | 4CC-94                          |
|                                  |             |          |             |                                 | 57                               | 13A-46A-66A | 66A         | 46 only RX  |                                 |
|                                  |             |          |             |                                 | 58                               | 13A-66B     | 66B         |             | 4CC-95                          |
|                                  |             |          |             |                                 | 59                               | 13A-66C     | 66C         |             | 4CC-96                          |
|                                  |             |          |             |                                 | 60                               | 13A-66A-66A | 66A-66A     |             | 4CC-97                          |
|                                  |             |          |             |                                 | 61                               | 66A-46C     | 66A         | 46 only RX  | 4CC-99                          |
|                                  |             |          |             |                                 | 62                               | 66A-46A-46A | 66A         | 46 only RX  |                                 |
|                                  |             |          |             |                                 | 63                               | 66D         |             |             | 5CC-168                         |
|                                  |             |          |             |                                 | 64                               | 66C-66A     | 66C-66A     |             | 5CC-174                         |
|                                  |             |          |             |                                 | 65                               | 66B-66A     |             |             | 5CC-166                         |
|                                  |             |          |             |                                 | 66                               | 66A-66A-66A | 66A-66A-66A |             | 4CC-110                         |
|                                  |             |          |             |                                 | 67                               | 4A-5B       | 4A          |             | 4CC-115                         |
|                                  |             |          |             |                                 | 68                               | 48A-48A-66A |             |             | 4CC-132                         |
|                                  |             |          |             |                                 | 69                               | 48C-66A     |             |             | 5CC-198                         |
|                                  |             |          |             |                                 | 70                               | 2A-48C      |             |             | 4CC-137                         |
|                                  |             |          |             |                                 | 71                               | 2A-48A-66A  |             |             |                                 |
|                                  |             |          |             |                                 | 72                               | 48A-66C     |             |             | 4CC-134                         |
|                                  |             |          |             |                                 | 73                               | 13A-48A-66A |             |             | 4CC-143                         |
|                                  |             |          |             |                                 | 74                               | 13A-48A-48A |             |             | 4CC-131                         |
|                                  |             |          |             |                                 | 75                               | 13A-48C     |             |             | 5CC-160                         |
|                                  |             |          |             |                                 | 76                               | 48A-66A-66A |             |             | 4CC-135                         |
|                                  |             |          |             |                                 | 77                               | 48A-66B     |             |             | 4CC-144                         |
|                                  |             |          |             |                                 | 78                               | 2A-48A-48A  |             |             | 4CC-125                         |
|                                  |             |          |             |                                 | 79                               | 4A-48C      |             |             |                                 |
|                                  |             |          |             |                                 | 80                               | 48D         |             |             | 4CC-123                         |
|                                  |             |          |             |                                 | 81                               | 48A-48C     |             |             | 5CC-183                         |
|                                  |             |          |             |                                 | 82                               | 2A-13A-48A  |             |             | 5CC-201                         |
|                                  |             |          |             |                                 | 207                              | 66A-66A-46A | 66A-66A     |             | 4CC-110                         |
|                                  |             |          |             |                                 | 209                              | 5A-48A-48A  | 48A-48A     |             | 4CC-212                         |
|                                  |             |          |             |                                 | 210                              | 5A-48C      | 48C         |             | 4CC-214                         |
|                                  |             |          |             |                                 | 211                              | 5A-48A-66A  | 5A-66A      |             | 4CC-213                         |



# FCC SAR TEST REPORT

Report No. : FA890514A

| 4CC Downlink Carrier Aggregation |                 |                      |             |                                 | 5CC Downlink Carrier Aggregation |                    |                      |             |
|----------------------------------|-----------------|----------------------|-------------|---------------------------------|----------------------------------|--------------------|----------------------|-------------|
| Number                           | Combination     | 4X4 MIMO             | Restriction | Covered by Measurement Superset | Number                           | Combination        | 4X4 MIMO             | Restriction |
| 83                               | 2A-2A-4A-4A     | 2A-2A-4A,2A-4A-4A    |             |                                 | 149                              | 2A-2A-5A-66A-66A   | 2A-2A,2A-66A,66A-66A |             |
| 84                               | 2A-2A-4A-5A     | 2A-2A-4A             |             |                                 | 150                              | 2A-2A-13A-66A-66A  | 2A-2A,2A-66A,66A-66A |             |
| 85                               | 2A-2A-5A-66A    | 2A-2A-66A            |             | 5CC-149                         | 151                              | 2A-5B-66B          | 2A-66B               |             |
| 86                               | 2A-2A-13A-66A   | 2A-2A-66A            |             | 5CC-150                         | 152                              | 2A-46D-66A         | 2A-66A               | 46 only RX  |
| 87                               | 2A-2A-46C       | 2A-2A                | 46 only RX  |                                 | 153                              | 2A-46A-46D         | 2A                   | 46 only RX  |
| 88                               | 2A-2A-66C       | 2A-2A-66C            |             |                                 | 154                              | 4A-46A-46D         | 4A                   | 46 only RX  |
| 89                               | 2A-2A-66A-66A   | 2A-2A-66A,2A-66A-66A |             |                                 | 155                              | 13A-46E            |                      | 46 only RX  |
| 90                               | 2A-5A-46C       | 2A                   | 46 only RX  |                                 | 156                              | 66A-46E            | 66A                  | 46 only RX  |
| 91                               | 2A-5A-66B       | 2A-66B               |             | 5CC-171                         | 157                              | 66A-46A-46D        | 66A                  | 46 only RX  |
| 92                               | 2A-5A-66C       | 2A-66C               |             | 5CC-172                         | 158                              | 13A-46D-66A        | 66A                  | 46 only RX  |
| 93                               | 2A-5A-66A-66A   | 2A-66A-66A           |             | 5CC-149                         | 159                              | 13A-48A-48C-66A    |                      |             |
| 94                               | 2A-13A-46C      | 2A                   | 46 only RX  |                                 | 160                              | 13A-48C-48C        |                      |             |
| 95                               | 2A-13A-66B      | 2A-66B               |             |                                 | 161                              | 13A-48C-66B        |                      |             |
| 96                               | 2A-13A-66C      | 2A-66C               |             |                                 | 162                              | 13A-48C-66C        |                      |             |
| 97                               | 2A-13A-66A-66A  | 2A-66A-66A           |             | 5CC-150                         | 163                              | 13A-48D-66A        |                      |             |
| 98                               | 2A-46D          | 2A                   |             | 5CC-152                         | 164                              | 13A-48E            |                      |             |
| 99                               | 2A-46C-66A      | 2A-66A               | 46 only RX  |                                 | 165                              | 2A-13A-46D         | 2A                   | 46 only RX  |
| 100                              | 2A-46A-46C      | 2A                   | 46 only RX  | 5CC-175                         | 166                              | 2A-13A-66A-66B     |                      |             |
| 101                              | 4A-46D          | 4A                   | 46 only RX  |                                 | 167                              | 2A-13A-66A-66C     |                      |             |
| 102                              | 4A-46A-46C      | 4A                   | 46 only RX  |                                 | 168                              | 66D-2A-13A         | 2A                   |             |
| 103                              | 5B-46C          |                      | 46 only RX  |                                 | 169                              | 2A-5A-48A-48C      | 2A-48A-48C           |             |
| 104                              | 5A-46D          |                      | 46 only RX  | 5CC-179                         | 170                              | 2A-2A-46D          | 2A-2A                | 46 only RX  |
| 105                              | 5A-46C-66A      | 66A                  | 46 only RX  |                                 | 171                              | 2A-2A-5A-66B       | 2A-2A-66B            |             |
| 106                              | 13A-46C-66A     | 66A                  | 46 only RX  |                                 | 172                              | 2A-2A-5A-66C       | 2A-2A-66C            |             |
| 107                              | 13A-46D         |                      | 46 only RX  | 5CC-158                         | 173                              | 2A-2A-66A-66B      |                      |             |
| 108                              | 46D-66A         | 66A                  |             | 5CC-152                         | 174                              | 2A-2A-66A-66C      |                      |             |
| 109                              | 46A-46C-66A     | 66A                  | 46 only RX  | 5CC-175                         | 175                              | 2A-46A-46C-66A     |                      | 46 only RX  |
| 110                              | 66A-66A-66A-46A | 66A-66A-66A          |             |                                 | 176                              | 2A-48A-48C-66A     |                      |             |
| 111                              | 2A-2A-66B       | 2A-2A-66B            |             |                                 | 177                              | 2A-48D-66A         |                      |             |
| 112                              | 2A-4A-4A-5A     | 2A-4A-4A             |             |                                 | 178                              | 2A-48E             |                      |             |
| 113                              | 2A-4A-5B        | 2A-4A                |             |                                 | 179                              | 2A-5A-46D          | 2A                   | 46 only RX  |
| 114                              | 2A-5B-66A       | 2A-66A               |             | 5CC-180                         | 180                              | 2A-5B-66A-66A      | 2A-66A-66A           |             |
| 115                              | 4A-4A-5B        | 4A-4A                |             |                                 | 181                              | 2A-5B-66C          | 2A-66C               |             |
| 116                              | 5B-66C          | 66C                  |             | 5CC-181                         | 182                              | 66A-66A-46D        |                      | 46 only RX  |
| 117                              | 5B-66B          | 66B                  |             | 5CC-151                         | 183                              | 48A-48C-66B        |                      |             |
| 118                              | 5B-66A-66A      | 66A-66A              |             | 5CC-180                         | 184                              | 48A-48C-66C        |                      |             |
| 119                              | 5A-5A-66C       | 66C                  |             |                                 | 185                              | 48C-48C-66A        |                      |             |
| 120                              | 5A-5A-66B       | 66B                  |             |                                 | 186                              | 48E-66A            | 66A                  |             |
| 121                              | 5A-5A-66A-66A   | 66A-66A              |             |                                 | 187                              | 5A-46D-66A         | 66A                  | 46 only RX  |
| 122                              | 13A-66A-66A-66A | 66A-66A-66A          |             |                                 | 188                              | 5B-66A-66B         |                      |             |
| 123                              | 48D-66A         |                      |             | 5CC-163                         | 189                              | 2A-46E             | 2A                   | 46 only RX  |
| 124                              | 48A-48C-66A     |                      |             | 5CC-159                         | 190                              | 5A-46E             |                      | 46 only RX  |
| 125                              | 2A-48A-48A-66A  |                      |             |                                 | 191                              | 66A-46C-46C        |                      | 46 only RX  |
| 126                              | 13A-48D         |                      |             | 5CC-163                         | 192                              | 2A-46C-46C         |                      | 46 only RX  |
| 127                              | 2A-48D          |                      |             | 5CC-177                         | 193                              | 5B-46D             |                      | 46 only RX  |
| 128                              | 13A-48A-48C     |                      |             | 5CC-159                         | 194                              | 66A-66A-66A-46C    |                      | 46 only RX  |
| 129                              | 2A-48A-48C      |                      |             | 5CC-176                         | 195                              | 13A-48A-48D        |                      |             |
| 130                              | 13A-48C-66A     |                      |             | 5CC-206                         | 196                              | 48A-48D-66A        |                      |             |
| 131                              | 13A-48A-48A-66A |                      |             | 5CC-205                         | 197                              | 4A-48E             |                      |             |
| 132                              | 48A-48A-66A-66A |                      |             |                                 | 198                              | 48C-66A-66A-66A    |                      |             |
| 133                              | 48A-48A-66B     |                      |             |                                 | 199                              | 48C-48D            |                      |             |
| 134                              | 48A-48A-66C     |                      |             |                                 | 200                              | 4A-48A-48D         |                      |             |
| 135                              | 48A-66A-66A-66A |                      |             |                                 | 201                              | 2A-13A-48A-48C     |                      |             |
| 136                              | 4A-48D          |                      |             |                                 | 202                              | 2A-13A-48D         |                      |             |
| 137                              | 2A-48C-66A      |                      |             |                                 | 203                              | 2A-48C-48C         |                      |             |
| 138                              | 48E             |                      |             | 5CC-164                         | 204                              | 2A-48A-48D         |                      |             |
| 139                              | 48A-48D         |                      |             | 5CC-195                         | 205                              | 2A-13A-48A-48A-66A |                      |             |
| 140                              | 48C-48C         |                      |             | 5CC-160                         | 206                              | 2A-13A-48C-66A     |                      |             |
| 141                              | 2A-13A-48A-48A  |                      |             | 5CC-205                         | 219                              | 2A-5A-48C-66A      | 2A-48C-66A           |             |
| 142                              | 2A-13A-48C      |                      |             | 5CC-206                         | 220                              | 2A-5A-48D          | 2A-48D               |             |
| 143                              | 13A-48A-66A-2A  |                      |             |                                 | 221                              | 5A-48A-48C-66A     | 48A-48C-66A          |             |
| 144                              | 48A-66B-13A     |                      |             |                                 | 222                              | 5A-48C-48C         | 48C-48C              |             |
| 145                              | 13A-48A-66C     |                      |             |                                 | 223                              | 5A-48E             | 48E                  |             |
| 146                              | 48C-66B         |                      |             | 5CC-161                         |                                  |                    |                      |             |
| 147                              | 48C-66C         |                      |             | 5CC-162                         |                                  |                    |                      |             |
| 148                              | 48C-66A-66A     |                      |             | 5CC-198                         |                                  |                    |                      |             |
| 208                              | 66A-66A-46C     |                      |             | 5CC-194                         |                                  |                    |                      |             |
| 212                              | 2A-5A-48A-48A   | 2A-48A-48A           |             |                                 |                                  |                    |                      |             |
| 213                              | 2A-5A-48A-66A   | 2A-48A-66A           |             |                                 |                                  |                    |                      |             |
| 214                              | 2A-5A-48C       | 2A-48C               |             | 5CC-219                         |                                  |                    |                      |             |
| 215                              | 5A-48A-48A-66A  | 48A-48A-66A          |             |                                 |                                  |                    |                      |             |
| 216                              | 5A-48A-48C      | 48A-48C              |             | 5CC-169                         |                                  |                    |                      |             |
| 217                              | 5A-48C-66A      | 48C-66A              |             | 5CC-219                         |                                  |                    |                      |             |
| 218                              | 5A-48D          | 48D                  |             | 5CC-220                         |                                  |                    |                      |             |

**<Power verification when LTE Carrier Aggregation Active>**
**General Note:**

- i. According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.
- ii. Uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.
- iii. The device supports downlink two carrier aggregation. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.
- iv. Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.
- v. For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.
- vi. For Intra-band, contiguous CA, the downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements.

$$\text{Nominal channel spacing} = \left\lceil \frac{BW_{\text{Channel}(1)} + BW_{\text{Channel}(2)} - 0.1 |BW_{\text{Channel}(1)} - BW_{\text{Channel}(2)}|}{0.6} \right\rceil 0.3 \text{ [MHz]}$$

**<Two Carrier power verification>**

| Configure  | PCC      |          |                |            |      |        |              | SCC      |          |                |            | Power                  |                       |
|------------|----------|----------|----------------|------------|------|--------|--------------|----------|----------|----------------|------------|------------------------|-----------------------|
|            | LTE Band | BW (MHz) | UL Freq. (MHz) | UL Channel | Mod. | UL# RB | UL RB Offset | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | With CA Tx.Power (dBm) | W/O CA Tx.Power (dBm) |
| Inter-Band | 5        | 10       | 829            | 20450      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 23.80                  | 23.81                 |

**<Three Carrier power verification>**

| Configure  | PCC      |          |                |            |      |        |              | SCC1     |          |                |            | SCC2     |          |                |            | Power                  |                       |
|------------|----------|----------|----------------|------------|------|--------|--------------|----------|----------|----------------|------------|----------|----------|----------------|------------|------------------------|-----------------------|
|            | LTE Band | BW (MHz) | UL Freq. (MHz) | UL Channel | Mod. | UL# RB | UL RB Offset | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | With CA Tx.Power (dBm) | W/O CA Tx.Power (dBm) |
| Inter-Band | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 4        | 20       | 2132.5         | 2175       | 13       | 10       | 751            | 5230       | 23.97                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 5        | 10       | 881.5          | 2525       | 46       | 20       | 5537.5         | 50665      | 23.91                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5914.9         | 54439      | 23.93                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 66       | 20       | 2155           | 66886      | 23.96                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 66       | 20       | 2155           | 66886      | 23.91                  | 23.99                 |
|            | 4        | 20M      | 1732.5         | 20175      | QPSK | 1      | 0            | 4        | 5        | 2112.5         | 1975       | 13       | 10       | 751            | 5230       | 23.91                  | 23.96                 |
|            | 4        | 20M      | 1732.5         | 20175      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 23.91                  | 23.96                 |
|            | 4        | 20M      | 1732.5         | 20175      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5914.9         | 54439      | 23.86                  | 23.96                 |
|            | 4        | 20M      | 1732.5         | 20175      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 20       | 3644.8         | 56188      | 23.90                  | 23.96                 |
|            | 5        | 10M      | 829            | 20450      | QPSK | 1      | 0            | 5        | 10       | 881.5          | 2525       | 46       | 20       | 5537.5         | 50665      | 23.71                  | 23.81                 |
|            | 5        | 10M      | 829            | 20450      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 66       | 20       | 2155           | 66886      | 23.77                  | 23.81                 |
|            | 13       | 10M      | 782            | 23230      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 66       | 20       | 2155           | 66886      | 23.46                  | 23.49                 |
|            | 66       | 20M      | 1745           | 132322     | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5914.9         | 54439      | 23.90                  | 23.99                 |

**<Four Carrier power verification>**

| Configure  | PCC      |          |                |            |      |        |              | SCC1     |          |                |            | SCC2     |          |                |            | SCC3     |          |                |            | Power                  |                       |
|------------|----------|----------|----------------|------------|------|--------|--------------|----------|----------|----------------|------------|----------|----------|----------------|------------|----------|----------|----------------|------------|------------------------|-----------------------|
|            | LTE Band | BW (MHz) | UL Freq. (MHz) | UL Channel | Mod. | UL# RB | UL RB Offset | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | With CA Tx.Power (dBm) | W/O CA Tx.Power (dBm) |
| Inter-Band | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 2        | 5        | 1987.5         | 1175       | 4        | 20       | 2132.5         | 2175       | 4        | 5        | 2112.5         | 1975       | 23.89                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 2        | 5        | 1987.5         | 1175       | 4        | 20       | 2132.5         | 2175       | 5        | 10       | 881.5          | 2525       | 23.95                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 2        | 5        | 1987.5         | 1175       | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 23.89                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 2        | 5        | 1987.5         | 1175       | 66       | 20       | 2155           | 66886      | 66       | 20       | 2174.8         | 67084      | 23.90                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 2        | 5        | 1987.5         | 1175       | 66       | 15       | 2155           | 66886      | 66       | 5        | 2164.3         | 66979      | 23.97                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 2        | 5        | 1987.5         | 1175       | 66       | 20       | 2155           | 66886      | 66       | 5        | 2197.5         | 67311      | 23.89                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 4        | 20       | 2132.5         | 2175       | 4        | 5        | 2112.5         | 1975       | 5        | 10       | 881.5          | 2525       | 23.96                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 4        | 20       | 2132.5         | 2175       | 5        | 10       | 881.5          | 2525       | 5        | 10       | 891.4          | 2624       | 23.91                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 5        | 10       | 881.5          | 2525       | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 23.94                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 5        | 10       | 881.5          | 2525       | 48       | 20       | 3625           | 55990      | 48       | 5        | 3697.5         | 56715      | 23.95                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 5        | 10       | 881.5          | 2525       | 48       | 20       | 3625           | 55990      | 66       | 20       | 2155           | 66886      | 23.98                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 13       | 10       | 751            | 5230       | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 23.89                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 13       | 10       | 751            | 5230       | 66       | 15       | 2155           | 66886      | 66       | 5        | 2164.3         | 66979      | 23.93                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 13       | 10       | 751            | 5230       | 66       | 20       | 2155           | 66886      | 66       | 20       | 2174.8         | 67084      | 23.93                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 66       | 20       | 2155           | 66886      | 23.95                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 5        | 3697.5         | 56715      | 66       | 20       | 2155           | 66886      | 23.94                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 20       | 3644.8         | 56188      | 66       | 20       | 2155           | 66886      | 23.99                  | 23.99                 |
|            | 4        | 20M      | 1732.5         | 20175      | QPSK | 1      | 0            | 4        | 5        | 2112.5         | 1975       | 5        | 10       | 881.5          | 2525       | 5        | 10       | 891.4          | 2624       | 23.87                  | 23.96                 |
|            | 4        | 20M      | 1732.5         | 20175      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5914.9         | 54439      | 46       | 20       | 5895.1         | 54241      | 23.87                  | 23.96                 |
|            | 4        | 20M      | 1732.5         | 20175      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 23.89                  | 23.96                 |
|            | 4        | 20M      | 1732.5         | 20175      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 20       | 3644.8         | 56188      | 48       | 20       | 3664.6         | 56386      | 23.90                  | 23.96                 |
|            | 5        | 10M      | 829            | 20450      | QPSK | 1      | 0            | 5        | 5        | 891.5          | 2625       | 66       | 20       | 2155           | 66886      | 66       | 20       | 2174.8         | 67084      | 23.73                  | 23.81                 |
|            | 5        | 10M      | 829            | 20450      | QPSK | 1      | 0            | 5        | 5        | 891.5          | 2625       | 66       | 15       | 2155           | 66886      | 66       | 5        | 2164.3         | 66979      | 23.80                  | 23.81                 |
|            | 5        | 10M      | 829            | 20450      | QPSK | 1      | 0            | 5        | 5        | 891.5          | 2625       | 66       | 20       | 2155           | 66886      | 66       | 5        | 2197.5         | 67311      | 23.77                  | 23.81                 |
|            | 5        | 10M      | 829            | 20450      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 66       | 20       | 2155           | 66886      | 23.71                  | 23.81                 |
|            | 5        | 10M      | 829            | 20450      | QPSK | 1      | 0            | 5        | 10       | 838.9          | 20549      | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 23.71                  | 23.81                 |
|            | 5        | 10M      | 829            | 20450      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 5        | 3697.5         | 56715      | 66       | 20       | 2155           | 66886      | 23.73                  | 23.81                 |
|            | 13       | 10M      | 782            | 23230      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 66       | 20       | 2155           | 66886      | 23.46                  | 23.49                 |
|            | 13       | 10M      | 782            | 23230      | QPSK | 1      | 0            | 66       | 20       | 2155           | 66886      | 66       | 5        | 2197.5         | 67311      | 66       | 20       | 2120           | 66536      | 23.49                  | 23.49                 |
|            | 13       | 10M      | 782            | 23230      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 66       | 20       | 2155           | 66886      | 2        | 20       | 1960           | 900        | 23.48                  | 23.49                 |
|            | 13       | 10M      | 782            | 23230      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 66       | 20       | 2155           | 66886      | 66       | 20       | 2174.8         | 67084      | 23.48                  | 23.49                 |
|            | 48       | 10M      | 3642.5         | 56165      | QPSK | 1      | 49           | 48       | 5        | 3552.5         | 55265      | 66       | 20       | 2155           | 66886      | 66       | 5        | 2197.5         | 67311      | 22.39                  | 22.49                 |
|            | 48       | 10M      | 3642.5         | 56165      | QPSK | 1      | 49           | 48       | 5        | 3552.5         | 55265      | 66       | 15       | 2155           | 66886      | 66       | 5        | 2164.3         | 66979      | 22.41                  | 22.49                 |
|            | 48       | 10M      | 3642.5         | 56165      | QPSK | 1      | 49           | 48       | 5        | 3552.5         | 55265      | 66       | 20       | 2155           | 66886      | 66       | 20       | 2174.8         | 67084      | 22.42                  | 22.49                 |
|            | 48       | 10M      | 3642.5         | 56165      | QPSK | 1      | 49           | 66       | 20       | 2155           | 66886      | 66       | 5        | 2197.5         | 67311      | 66       | 20       | 2120           | 66536      | 22.41                  | 22.49                 |
|            | 48       | 10M      | 3642.5         | 56165      | QPSK | 1      | 49           | 66       | 15       | 2155           | 66886      | 66       | 5        | 2164.3         | 66979      | 13       | 10       | 782            | 23230      | 22.40                  | 22.49                 |
|            | 66       | 20M      | 1745           | 132322     | QPSK | 1      | 0            | 66       | 5        | 2197.5         | 67311      | 66       | 20       | 2120           | 66536      | 46       | 20       | 5537.5         | 50665      | 23.98                  | 23.99                 |



# FCC SAR TEST REPORT

Report No. : FA890514A

## <Five Carrier power verification>

| Configure  | PCC      |          |                |            |      |        |              | SCC1     |          |                |            | SCC2     |          |                |            | SCC3     |          |                |            | SCC4     |          |                |            | Power                  |                       |
|------------|----------|----------|----------------|------------|------|--------|--------------|----------|----------|----------------|------------|----------|----------|----------------|------------|----------|----------|----------------|------------|----------|----------|----------------|------------|------------------------|-----------------------|
|            | LTE Band | BW (MHz) | UL Freq. (MHz) | UL Channel | Mod. | UL# RB | UL RB Offset | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | With CA Tx.Power (dBm) | W/O CA Tx.Power (dBm) |
| Inter-Band | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 2        | 5        | 1987.5         | 1175       | 5        | 10       | 881.5          | 2525       | 66       | 20       | 2155           | 66886      | 66       | 5        | 2197.5         | 67311      | 23.97                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 2        | 5        | 1987.5         | 1175       | 5        | 10       | 881.5          | 2525       | 66       | 15       | 2155           | 66886      | 66       | 5        | 2164.3         | 66979      | 23.99                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 2        | 5        | 1987.5         | 1175       | 5        | 10       | 881.5          | 2525       | 66       | 20       | 2155           | 66886      | 66       | 20       | 2174.8         | 67084      | 23.89                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 2        | 5        | 1987.5         | 1175       | 13       | 10       | 782            | 23230      | 66       | 20       | 2155           | 66886      | 66       | 5        | 2197.5         | 67311      | 23.94                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 2        | 5        | 1987.5         | 1175       | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 23.97                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 2        | 5        | 1987.5         | 1175       | 66       | 20       | 2155           | 66886      | 66       | 5        | 2197.5         | 67311      | 66       | 15       | 2188.2         | 67218      | 23.91                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 2        | 5        | 1987.5         | 1175       | 66       | 20       | 2155           | 66886      | 66       | 5        | 2197.5         | 67311      | 66       | 20       | 2185.8         | 67194      | 23.94                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 5        | 10       | 881.5          | 2525       | 5        | 10       | 891.4          | 2624       | 66       | 15       | 2155           | 66886      | 66       | 5        | 2164.3         | 66979      | 23.90                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 5        | 10       | 881.5          | 2525       | 5        | 10       | 891.4          | 2624       | 66       | 20       | 2155           | 66886      | 66       | 5        | 2197.5         | 67311      | 23.95                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 5        | 10       | 881.5          | 2525       | 5        | 10       | 891.4          | 2624       | 66       | 20       | 2155           | 66886      | 66       | 20       | 2174.8         | 67084      | 23.89                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 5        | 10       | 881.5          | 2525       | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 23.97                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 5        | 10       | 881.5          | 2525       | 48       | 20       | 3625           | 55990      | 48       | 5        | 3697.5         | 56715      | 48       | 20       | 3685.8         | 56598      | 23.96                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 5        | 10       | 881.5          | 2525       | 48       | 20       | 3625           | 55990      | 48       | 20       | 3644.8         | 56188      | 66       | 20       | 2155           | 66886      | 23.97                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 5        | 10       | 881.5          | 2525       | 48       | 20       | 3625           | 55990      | 48       | 20       | 3664.6         | 56386      | 48       | 20       | 3664.6         | 56386      | 23.98                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 13       | 10       | 782            | 23230      | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 23.98                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 13       | 10       | 782            | 23230      | 66       | 20       | 2155           | 66886      | 66       | 5        | 2197.5         | 67311      | 66       | 15       | 2188.2         | 67218      | 23.99                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 13       | 10       | 782            | 23230      | 66       | 20       | 2155           | 66886      | 66       | 5        | 2197.5         | 67311      | 66       | 20       | 2185.8         | 67194      | 23.96                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 13       | 10       | 782            | 23230      | 48       | 20       | 3625           | 55990      | 48       | 5        | 3697.5         | 56715      | 48       | 20       | 3685.8         | 56598      | 23.99                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 13       | 10       | 782            | 23230      | 48       | 20       | 3625           | 55990      | 48       | 20       | 3644.8         | 56188      | 48       | 20       | 3664.6         | 56386      | 23.92                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 13       | 10       | 782            | 23230      | 48       | 20       | 3625           | 55990      | 48       | 5        | 3697.5         | 56715      | 66       | 20       | 2155           | 66886      | 23.96                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 13       | 10       | 782            | 23230      | 48       | 20       | 3625           | 55990      | 48       | 20       | 3644.8         | 56188      | 66       | 20       | 2155           | 66886      | 23.89                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 66       | 20       | 2155           | 66886      | 23.90                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5914.9         | 54439      | 46       | 20       | 5895.1         | 54241      | 46       | 20       | 5875.3         | 54043      | 23.89                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5914.9         | 54439      | 46       | 20       | 5895.1         | 54241      | 66       | 20       | 2155           | 66886      | 23.99                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 5        | 3697.5         | 56715      | 48       | 20       | 3685.8         | 56598      | 66       | 20       | 2155           | 66886      | 23.92                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 20       | 3644.8         | 56188      | 48       | 20       | 3664.6         | 56386      | 66       | 20       | 2155           | 66886      | 23.90                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 20       | 3644.8         | 56188      | 48       | 20       | 3664.6         | 56386      | 48       | 20       | 3684.4         | 56584      | 23.90                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 46       | 20       | 5596.9         | 51259      | 23.92                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5914.9         | 54439      | 46       | 20       | 5895.1         | 54241      | 23.92                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 20       | 3644.8         | 56188      | 48       | 5        | 3697.5         | 56715      | 48       | 20       | 3685.8         | 56598      | 23.99                  | 23.99                 |
|            | 2        | 20M      | 1860           | 18700      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 5        | 3697.5         | 56715      | 48       | 20       | 3685.8         | 56598      | 48       | 20       | 3666           | 56400      | 23.94                  | 23.99                 |
|            | 4        | 20M      | 1732.5         | 20175      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5914.9         | 54439      | 46       | 20       | 5895.1         | 54241      | 46       | 20       | 5875.3         | 54043      | 23.96                  | 23.96                 |
|            | 4        | 20M      | 1732.5         | 20175      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 20       | 3644.8         | 56188      | 48       | 20       | 3664.6         | 56386      | 48       | 20       | 3684.4         | 56584      | 23.93                  | 23.96                 |
|            | 4        | 20M      | 1732.5         | 20175      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 5        | 3697.5         | 56715      | 48       | 20       | 3685.8         | 56598      | 48       | 20       | 3666           | 56400      | 23.90                  | 23.96                 |
|            | 5        | 10M      | 829            | 20450      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 66       | 20       | 2155           | 66886      | 23.77                  | 23.81                 |
|            | 5        | 10M      | 829            | 20450      | QPSK | 1      | 0            | 5        | 10       | 838.9          | 20549      | 66       | 20       | 2155           | 66886      | 66       | 5        | 2197.5         | 67311      | 66       | 15       | 2188.2         | 67218      | 23.78                  | 23.81                 |
|            | 5        | 10M      | 829            | 20450      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 46       | 20       | 5596.9         | 51259      | 23.77                  | 23.81                 |
|            | 5        | 10M      | 829            | 20450      | QPSK | 1      | 0            | 5        | 10       | 838.9          | 20549      | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 23.72                  | 23.81                 |
|            | 5        | 10M      | 829            | 20450      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 5        | 3697.5         | 56715      | 48       | 20       | 3685.8         | 56598      | 66       | 20       | 2155           | 66886      | 23.80                  | 23.81                 |
|            | 5        | 10M      | 829            | 20450      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 20       | 3644.8         | 56188      | 48       | 5        | 3697.5         | 56715      | 48       | 20       | 3685.8         | 56598      | 23.79                  | 23.81                 |
|            | 5        | 10M      | 829            | 20450      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 20       | 3644.8         | 56188      | 48       | 20       | 3664.6         | 56386      | 48       | 20       | 3684.4         | 56584      | 23.75                  | 23.81                 |
|            | 13       | 10M      | 782            | 23230      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 46       | 20       | 5596.9         | 51259      | 23.44                  | 23.49                 |
|            | 13       | 10M      | 782            | 23230      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 66       | 20       | 2155           | 66886      | 23.49                  | 23.49                 |
|            | 13       | 10M      | 782            | 23230      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 5        | 3697.5         | 56715      | 48       | 20       | 3685.8         | 56598      | 66       | 20       | 2155           | 66886      | 23.43                  | 23.49                 |
|            | 13       | 10M      | 782            | 23230      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 20       | 3644.8         | 56188      | 48       | 5        | 3697.5         | 56715      | 48       | 20       | 3685.8         | 56598      | 23.40                  | 23.49                 |
|            | 13       | 10M      | 782            | 23230      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 20       | 3644.8         | 56188      | 66       | 15       | 2155           | 66886      | 66       | 5        | 2164.3         | 66979      | 23.41                  | 23.49                 |
|            | 13       | 10M      | 782            | 23230      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 20       | 3644.8         | 56188      | 66       | 20       | 2155           | 66886      | 66       | 20       | 2174.8         | 67084      | 23.48                  | 23.49                 |
|            | 13       | 10M      | 782            | 23230      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 20       | 3644.8         | 56188      | 48       | 20       | 3664.6         | 56386      | 66       | 20       | 2155           | 66886      | 23.40                  | 23.49                 |
|            | 13       | 10M      | 782            | 23230      | QPSK | 1      | 0            | 48       | 20       | 3625           | 55990      | 48       | 20       |                |            |          |          |                |            |          |          |                |            |                        |                       |

## 12. Antenna Location

| Distance of the Antenna to the EUT surface/edge |        |        |          |             |            |           |
|-------------------------------------------------|--------|--------|----------|-------------|------------|-----------|
| Antennas                                        | Back   | Front  | Top Side | Bottom Side | Right Side | Left Side |
| WWAN LB/MB                                      | ≤ 25mm | ≤ 25mm | ≤ 25mm   | >25mm       | >25mm      | ≤ 25mm    |
| WWAN HB                                         | ≤ 25mm | ≤ 25mm | >25mm    | ≤ 25mm      | >25mm      | ≤ 25mm    |

| Positions for SAR tests; Hotspot mode |      |       |          |             |            |           |
|---------------------------------------|------|-------|----------|-------------|------------|-----------|
| Antennas                              | Back | Front | Top Side | Bottom Side | Right Side | Left Side |
| WWAN LB/MB                            | Yes  | Yes   | Yes      | No          | No         | Yes       |
| WWAN HB                               | Yes  | Yes   | No       | Yes         | No         | Yes       |

**General Note:**

- Referring to KDB 941225 D06 v02r01, when the overall device length and width are  $\geq 9\text{cm} \times 5\text{cm}$ , the test distance is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.
- The detail antenna locations please refer to appendix D.

### **13. IHDT56XJ1 SAR Test results– with Mod attached**

**General Note:**

1. Refer to the SAR report of IHDT56XJ1 (Sporton Report No: FA851503), the highest SAR reported for each wireless technology (1xRTT, EVDO, WCDMA, GSM, Wi-Fi etc.), frequency band, operating mode (different modes/configurations within each wireless technology) and exposure condition (head, body-worn accessory, hotspot mode, etc.) was repeated with the Mod attached. For the device back position in body exposure condition, the SAR result is lower than phone-only due to the additional thickness introduced by the Mod. For the other positions in head and body exposure conditions, the SAR test results don't deviate from the phone-only results to exceed the measurement uncertainty, therefore the phone-only SAR results were also used in simultaneous transmission analysis in section 15
2. Additional CDMA BC1 and LTE B2/B66 SAR for back position is used for simultaneous transmission analysis in hotspot mode.
3. Additional Left check, Left Tilted, Left Side and Top Side of 2.4GHz WLAN is used for simultaneous transmission analysis.
4. Additional Left check, Left Tilted and Top Side of 5GHz WLAN is used for simultaneous transmission analysis.

#### **13.1 Head SAR**

**<GSM SAR>**

| Plot No. | Band    | Mode              | Test Position | Gap (mm) | Ch. | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|---------|-------------------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 01       | GSM850  | GPRS (3 Tx slots) | Left Cheek    | 0mm      | 251 | 848.8       | 30.31               | 31.0                | 1.172                  | 0                | 0.126                  | 0.148                  |
| 02       | GSM1900 | GPRS (3 Tx slots) | Right Cheek   | 0mm      | 810 | 1909.8      | 26.87               | 28.0                | 1.297                  | 0                | 0.086                  | 0.112                  |

**<WCDMA SAR>**

| Plot No. | Band     | Mode         | Test Position | Gap (mm) | Ch.  | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|----------|--------------|---------------|----------|------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 03       | WCDMA II | RMC 12.2Kbps | Right Cheek   | 0mm      | 9538 | 1907.6      | 23.52               | 24.0                | 1.117                  | -0.18            | 0.205                  | 0.229                  |
| 04       | WCDMA V  | RMC 12.2Kbps | Left Cheek    | 0mm      | 4182 | 836.4       | 23.30               | 24.0                | 1.175                  | 0.04             | 0.220                  | 0.258                  |

**<CDMA SAR>**

| Plot No. | Band         | Mode     | Test Position | Gap (mm) | Ch.  | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|--------------|----------|---------------|----------|------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 05       | CDMA2000 BC0 | RC3 SO55 | Left Cheek    | 0mm      | 777  | 848.31      | 24.15               | 25.0                | 1.216                  | 0.02             | 0.297                  | 0.361                  |
| 06       | CDMA2000 BC1 | RC3 SO55 | Right Cheek   | 0mm      | 1175 | 1908.75     | 23.91               | 25.0                | 1.285                  | 0                | 0.162                  | 0.208                  |

**<LTE SAR>**

| Plot No. | Band        | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.    | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-------------|----------|------------|---------|-----------|---------------|----------|--------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 07       | LTE Band 2  | 20M      | QPSK       | 1       | 0         | Right Cheek   | 0mm      | 19100  | 1900        | 23.33               | 24.0                | 1.167                  | 0.1              | 0.180                  | 0.210                  |
| 08       | LTE Band 5  | 10M      | QPSK       | 1       | 25        | Left Cheek    | 0mm      | 20525  | 836.5       | 23.00               | 24.0                | 1.259                  | 0.08             | 0.238                  | 0.300                  |
| 09       | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Right Cheek   | 0mm      | 20850  | 2510        | 22.95               | 24.0                | 1.274                  | -0.19            | 0.562                  | 0.716                  |
| 10       | LTE Band 13 | 10M      | QPSK       | 1       | 0         | Left Cheek    | 0mm      | 23230  | 782         | 23.00               | 24.0                | 1.259                  | -0.02            | 0.199                  | 0.251                  |
| 11       | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Right Cheek   | 0mm      | 132572 | 1770        | 23.10               | 24.0                | 1.230                  | -0.03            | 0.350                  | 0.431                  |

**<WLAN SAR>**

| Plot No. | Band       | Mode          | Test Position | Gap (mm) | Ch. | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|------------|---------------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
| 12       | WLAN2.4GHz | 802.11b 1Mbps | Right Cheek   | 0mm      | 11  | 2462        | 16.79               | 17.0                | 1.050                  | 100          | 1.000                     | 0                | 0.420                  | 0.441                  |
|          | WLAN2.4GHz | 802.11b 1Mbps | Left Cheek    | 0mm      | 11  | 2462        | 16.79               | 17.0                | 1.050                  | 100          | 1.000                     | -0.11            | 0.106                  | 0.111                  |
|          | WLAN2.4GHz | 802.11b 1Mbps | Left Tilted   | 0mm      | 11  | 2462        | 16.79               | 17.0                | 1.050                  | 100          | 1.000                     | 0.1              | 0.114                  | 0.120                  |
| 13       | WLAN5GHz   | 802.11a 6Mbps | Right Cheek   | 0mm      | 64  | 5320        | 17.23               | 17.5                | 1.064                  | 98.28        | 1.018                     | -0.07            | 1.000                  | 1.083                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Right Cheek   | 0mm      | 60  | 5300        | 17.27               | 17.5                | 1.054                  | 98.28        | 1.018                     | -0.01            | 0.996                  | 1.069                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Left Cheek    | 0mm      | 60  | 5300        | 17.27               | 17.5                | 1.054                  | 98.28        | 1.018                     | -0.06            | 0.176                  | 0.189                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Left Tilted   | 0mm      | 60  | 5300        | 17.27               | 17.5                | 1.054                  | 98.28        | 1.018                     | -0.05            | 0.171                  | 0.184                  |
| 14       | WLAN5GHz   | 802.11a 6Mbps | Right Cheek   | 0mm      | 100 | 5500        | 17.07               | 17.5                | 1.104                  | 98.28        | 1.018                     | -0.15            | 0.981                  | 1.103                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Right Cheek   | 0mm      | 116 | 5580        | 17.18               | 17.5                | 1.076                  | 98.28        | 1.018                     | -0.16            | 0.971                  | 1.064                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Left Cheek    | 0mm      | 116 | 5580        | 17.18               | 17.5                | 1.076                  | 98.28        | 1.018                     | 0.12             | 0.206                  | 0.226                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Left Tilted   | 0mm      | 116 | 5580        | 17.18               | 17.5                | 1.076                  | 98.28        | 1.018                     | 0.09             | 0.181                  | 0.198                  |
| 15       | WLAN5GHz   | 802.11a 6Mbps | Right Cheek   | 0mm      | 157 | 5785        | 16.89               | 17.5                | 1.151                  | 98.28        | 1.018                     | 0.19             | 0.545                  | 0.638                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Left Cheek    | 0mm      | 157 | 5785        | 16.89               | 17.5                | 1.151                  | 98.28        | 1.018                     | 0.12             | 0.221                  | 0.259                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Left Tilted   | 0mm      | 157 | 5785        | 16.89               | 17.5                | 1.151                  | 98.28        | 1.018                     | 0.04             | 0.227                  | 0.266                  |

**<Bluetooth SAR>**

| Plot No. | Band      | Mode  | Test Position | Gap (mm) | Ch. | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-----------|-------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
| 16       | Bluetooth | 1Mbps | Right Cheek   | 0mm      | 0   | 2402        | 16.52               | 16.6                | 1.019                  | 77.02        | 1.082                     | 0.12             | 0.376                  | 0.414                  |



### 13.2 Hotspot SAR

#### <GSM SAR>

| Plot No. | Band    | Mode              | Test Position | Gap (mm) | Ch. | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|---------|-------------------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 17       | GSM850  | GPRS (3 Tx slots) | Back          | 5mm      | 251 | 848.8       | 28.30               | 29.5                | 1.318                  | -0.07            | 0.181                  | 0.239                  |
| 18       | GSM1900 | GPRS (4 Tx slots) | Back          | 5mm      | 810 | 1909.8      | 18.93               | 19.0                | 1.016                  | -0.08            | 0.103                  | 0.105                  |

#### <WCDMA SAR>

| Plot No. | Band     | Mode        | Test Position | Gap (mm) | Ch.  | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|----------|-------------|---------------|----------|------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 19       | WCDMA II | RMC12.2Kbps | Bottom Side   | 5mm      | 9538 | 1907.6      | 12.68               | 13.8                | 1.294                  | -0.05            | 0.678                  | 0.877                  |
|          | WCDMA II | RMC12.2Kbps | Bottom Side   | 5mm      | 9262 | 1852.4      | 12.40               | 13.8                | 1.380                  | 0.03             | 0.628                  | 0.867                  |
|          | WCDMA II | RMC12.2Kbps | Bottom Side   | 5mm      | 9400 | 1880        | 12.39               | 13.8                | 1.384                  | 0.02             | 0.622                  | 0.861                  |
| 20       | WCDMA V  | RMC12.2Kbps | Back          | 5mm      | 4233 | 846.6       | 20.74               | 21.8                | 1.276                  | 0                | 0.244                  | 0.311                  |

#### <CDMA SAR>

| Plot No. | Band         | Mode         | Test Position | Gap (mm) | Ch.  | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|--------------|--------------|---------------|----------|------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 21       | CDMA2000 BC0 | RTAP153.6bps | Back          | 5mm      | 777  | 848.31      | 19.89               | 21.0                | 1.291                  | -0.01            | 0.172                  | 0.222                  |
| 22       | CDMA2000 BC1 | RTAP153.6bps | Bottom Side   | 5mm      | 25   | 1851.25     | 12.66               | 14.0                | 1.361                  | -0.1             | 0.681                  | 0.927                  |
|          | CDMA2000 BC1 | RTAP153.6bps | Bottom Side   | 5mm      | 1175 | 1908.75     | 12.88               | 14.0                | 1.294                  | 0.08             | 0.688                  | 0.890                  |
|          | CDMA2000 BC1 | RTAP153.6bps | Bottom Side   | 5mm      | 600  | 1880        | 12.75               | 14.0                | 1.334                  | 0.03             | 0.667                  | 0.889                  |
|          | CDMA2000 BC1 | RTAP153.6bps | Back          | 5mm      | 1175 | 1908.75     | 12.88               | 14.0                | 1.294                  | 0.01             | 0.128                  | 0.166                  |

#### <LTE SAR>

| Plot No. | Band        | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.    | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-------------|----------|------------|---------|-----------|---------------|----------|--------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 23       | LTE Band 2  | 20M      | QPSK       | 1       | 0         | Bottom Side   | 5mm      | 18700  | 1860        | 12.82               | 14.0                | 1.312                  | 0                | 0.657                  | 0.862                  |
|          | LTE Band 2  | 20M      | QPSK       | 1       | 0         | Bottom Side   | 5mm      | 19100  | 1900        | 13.08               | 14.0                | 1.236                  | 0.03             | 0.678                  | 0.838                  |
|          | LTE Band 2  | 20M      | QPSK       | 1       | 0         | Bottom Side   | 5mm      | 18900  | 1880        | 13                  | 14.0                | 1.259                  | 0.1              | 0.651                  | 0.820                  |
|          | LTE Band 2  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 19100  | 1900        | 13.08               | 14.0                | 1.236                  | 0.08             | 0.131                  | 0.162                  |
| 24       | LTE Band 5  | 10M      | QPSK       | 1       | 25        | Back          | 5mm      | 20525  | 836.5       | 20.76               | 21.8                | 1.271                  | -0.05            | 0.235                  | 0.299                  |
| 25       | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 20850  | 2510        | 15.25               | 16.2                | 1.245                  | -0.03            | 0.115                  | 0.143                  |
| 26       | LTE Band 13 | 10M      | QPSK       | 1       | 0         | Back          | 5mm      | 23230  | 782         | 21.14               | 22.0                | 1.219                  | -0.01            | 0.188                  | 0.229                  |
| 27       | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Bottom Side   | 5mm      | 132322 | 1745        | 14.46               | 15.3                | 1.213                  | -0.03            | 0.945                  | 1.147                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132072 | 1720        | 14.47               | 15.3                | 1.211                  | 0.020            | 0.204                  | 0.247                  |

#### <WLAN SAR>

| Plot No. | Band       | Mode          | Test Position | Gap (mm) | Ch. | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|------------|---------------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
| 28       | WLAN2.4GHz | 802.11b 1Mbps | Back          | 5mm      | 11  | 2462        | 16.79               | 17.0                | 1.050                  | 100          | 1.000                     | 0.03             | 0.045                  | 0.047                  |
|          | WLAN2.4GHz | 802.11b 1Mbps | Left Side     | 5mm      | 11  | 2462        | 16.79               | 17.0                | 1.050                  | 100          | 1.000                     | 0.02             | 0.366                  | 0.384                  |
|          | WLAN2.4GHz | 802.11b 1Mbps | Top Side      | 5mm      | 11  | 2462        | 16.79               | 17.0                | 1.050                  | 100          | 1.000                     | 0                | 0.084                  | 0.088                  |
| 29       | WLAN5GHz   | 802.11a 6Mbps | Left Side     | 5mm      | 40  | 5200        | 17.26               | 17.5                | 1.057                  | 98.28        | 1.018                     | -0.13            | 0.693                  | 0.746                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Back          | 5mm      | 40  | 5200        | 17.26               | 17.5                | 1.057                  | 98.28        | 1.018                     | -0.16            | 0.107                  | 0.115                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Top Side      | 5mm      | 40  | 5200        | 17.26               | 17.5                | 1.057                  | 98.28        | 1.018                     | 0.05             | 0.713                  | 0.767                  |
| 30       | WLAN5GHz   | 802.11a 6Mbps | Left Side     | 5mm      | 157 | 5785        | 16.89               | 17.5                | 1.151                  | 98.28        | 1.018                     | -0.16            | 0.547                  | 0.641                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Back          | 5mm      | 157 | 5785        | 16.89               | 17.5                | 1.151                  | 98.28        | 1.018                     | -0.01            | 0.106                  | 0.124                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Top Side      | 5mm      | 157 | 5785        | 16.89               | 17.5                | 1.151                  | 98.28        | 1.018                     | 0.06             | 0.338                  | 0.396                  |

**<Bluetooth SAR>**

| Plot No. | Band      | Mode  | Test Position | Gap (mm) | Ch. | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-----------|-------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
| 31       | Bluetooth | 1Mbps | Back          | 5mm      | 0   | 2402        | 16.52               | 16.6                | 1.019                  | 77.02        | 1.082                     | -0.13            | 0.045                  | 0.050                  |

**13.3 Body Worn Accessory SAR**
**<GSM SAR>**

| Plot No. | Band    | Mode              | Test Position | Gap (mm) | Ch. | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|---------|-------------------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 32       | GSM850  | GPRS (3 Tx slots) | Back          | 5mm      | 251 | 848.8       | 28.30               | 29.5                | 1.318                  | -0.07            | 0.181                  | 0.239                  |
| 33       | GSM1900 | GPRS (3 Tx slots) | Back          | 5mm      | 810 | 1909.8      | 20.46               | 21.5                | 1.271                  | -0.03            | 0.054                  | 0.069                  |

**<WCDMA SAR>**

| Plot No. | Band     | Mode        | Test Position | Gap (mm) | Ch.  | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|----------|-------------|---------------|----------|------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 34       | WCDMA II | RMC12.2Kbps | Back          | 5mm      | 9262 | 1852.4      | 15.30               | 16.5                | 1.318                  | 0.03             | 0.190                  | 0.250                  |
| 35       | WCDMA V  | RMC12.2Kbps | Back          | 5mm      | 4233 | 846.6       | 20.74               | 21.8                | 1.276                  | 0                | 0.244                  | 0.311                  |

**<CDMA SAR>**

| Plot No. | Band         | Mode             | Test Position | Gap (mm) | Ch. | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|--------------|------------------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 36       | CDMA2000 BC0 | RC3 SO32 (F+SCH) | Back          | 5mm      | 777 | 848.31      | 19.92               | 21.0                | 1.282                  | -0.16            | 0.220                  | 0.282                  |
| 37       | CDMA2000 BC1 | RC3 SO32 (F+SCH) | Back          | 5mm      | 25  | 1851.25     | 15.33               | 16.5                | 1.309                  | 0.03             | 0.190                  | 0.249                  |

**<LTE SAR>**

| Plot No. | Band        | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.    | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-------------|----------|------------|---------|-----------|---------------|----------|--------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 38       | LTE Band 2  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 18700  | 1860        | 15.55               | 16.5                | 1.245                  | 0.03             | 0.192                  | 0.239                  |
| 39       | LTE Band 5  | 10M      | QPSK       | 1       | 25        | Back          | 5mm      | 20525  | 836.5       | 20.76               | 21.8                | 1.271                  | -0.05            | 0.235                  | 0.299                  |
| 40       | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 20850  | 2510        | 15.25               | 16.2                | 1.245                  | -0.03            | 0.115                  | 0.143                  |
| 41       | LTE Band 13 | 10M      | QPSK       | 1       | 0         | Back          | 5mm      | 23230  | 782         | 21.14               | 22.0                | 1.219                  | -0.01            | 0.188                  | 0.229                  |
| 42       | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 132072 | 1720        | 14.73               | 15.8                | 1.279                  | -0.03            | 0.722                  | 0.924                  |
|          | LTE Band 66 | 20M      | QPSK       | 1RB     | 0Offset   | Back          | 5mm      | 132072 | 1720        | 14.73               | 15.8                | 1.279                  | 0.03             | 0.246                  | 0.315                  |

**<WLAN SAR>**

| Plot No. | Band       | Mode          | Test Position | Gap (mm) | Ch. | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|------------|---------------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
| 43       | WLAN2.4GHz | 802.11b 1Mbps | Back          | 5mm      | 11  | 2462        | 16.79               | 17.0                | 1.050                  | 100          | 1.000                     | 0.03             | 0.045                  | 0.047                  |
| 44       | WLAN5GHz   | 802.11a 6Mbps | Back          | 5mm      | 64  | 5320        | 17.23               | 17.5                | 1.064                  | 98.28        | 1.018                     | -0.06            | 0.114                  | 0.123                  |
| 45       | WLAN5GHz   | 802.11a 6Mbps | Back          | 5mm      | 100 | 5500        | 17.07               | 17.5                | 1.104                  | 98.28        | 1.018                     | -0.07            | 0.121                  | 0.136                  |
| 46       | WLAN5GHz   | 802.11a 6Mbps | Back          | 5mm      | 157 | 5785        | 16.89               | 17.5                | 1.151                  | 98.28        | 1.018                     | -0.01            | 0.106                  | 0.124                  |

**<Bluetooth SAR>**

| Plot No. | Band      | Mode  | Test Position | Gap (mm) | Ch. | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-----------|-------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
| 47       | Bluetooth | 1Mbps | Back          | 5mm      | 0   | 2402        | 16.52               | 16.6                | 1.019                  | 77.02        | 1.082                     | -0.13            | 0.045                  | 0.050                  |

### **13.4 Product Specific SAR**

#### **<GSM SAR>**

| Plot No. | Band    | Mode              | Test Position | Gap (mm) | Ch. | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 10g SAR (W/kg) | Reported 10g SAR (W/kg) |
|----------|---------|-------------------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|------------------|-------------------------|-------------------------|
| 48       | GSM850  | GPRS (3 Tx slots) | Back          | 0mm      | 251 | 848.8       | 30.31               | 31.0                | 1.172                  | -0.04            | 0.347                   | 0.407                   |
| 49       | GSM1900 | GPRS (3 Tx slots) | Back          | 0mm      | 512 | 1850.2      | 24.62               | 26.5                | 1.542                  | -0.13            | 0.552                   | 0.851                   |

#### **<WCDMA SAR>**

| Plot No. | Band     | Mode        | Test Position | Gap (mm) | Ch.  | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 10g SAR (W/kg) | Reported 10g SAR (W/kg) |
|----------|----------|-------------|---------------|----------|------|-------------|---------------------|---------------------|------------------------|------------------|-------------------------|-------------------------|
| 50       | WCDMA II | RMC12.2Kbps | Back          | 0mm      | 9262 | 1852.4      | 18.96               | 20.3                | 1.361                  | 0                | 0.864                   | 1.176                   |
| 51       | WCDMA V  | RMC12.2Kbps | Back          | 0mm      | 4182 | 836.4       | 23.30               | 24.0                | 1.175                  | -0.05            | 0.573                   | 0.673                   |

#### **<CDMA SAR>**

| Plot No. | Band         | Mode         | Test Position | Gap (mm) | Ch.  | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 10g SAR (W/kg) | Reported 10g SAR (W/kg) |
|----------|--------------|--------------|---------------|----------|------|-------------|---------------------|---------------------|------------------------|------------------|-------------------------|-------------------------|
| 52       | CDMA2000 BC0 | RTAP153.6bps | Back          | 0mm      | 777  | 848.31      | 24.11               | 25.0                | 1.227                  | -0.03            | 0.780                   | 0.957                   |
| 53       | CDMA2000 BC1 | RTAP153.6bps | Back          | 0mm      | 1175 | 1908.75     | 18.36               | 19.5                | 1.300                  | 0                | 0.917                   | 1.192                   |

#### **<LTE SAR>**

| Plot No. | Band        | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.    | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 10g SAR (W/kg) | Reported 10g SAR (W/kg) |
|----------|-------------|----------|------------|---------|-----------|---------------|----------|--------|-------------|---------------------|---------------------|------------------------|------------------|-------------------------|-------------------------|
| 54       | LTE Band 2  | 20M      | QPSK       | 50      | 0         | Back          | 0mm      | 18700  | 1860        | 19.30               | 20.6                | 1.349                  | 0                | 0.871                   | 1.175                   |
| 55       | LTE Band 5  | 10M      | QPSK       | 1       | 25        | Back          | 0mm      | 20525  | 836.5       | 23.00               | 24.0                | 1.259                  | -0.06            | 0.657                   | 0.827                   |
| 56       | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Back          | 0mm      | 21350  | 2560        | 19.80               | 20.7                | 1.230                  | -0.03            | 0.429                   | 0.528                   |
| 57       | LTE Band 13 | 10M      | QPSK       | 1       | 0         | Back          | 0mm      | 23230  | 782         | 23.00               | 24.0                | 1.259                  | -0.03            | 0.564                   | 0.710                   |
| 58       | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Back          | 0mm      | 132072 | 1720        | 18.16               | 19.3                | 1.300                  | 0                | 0.792                   | 1.030                   |

#### **<WLAN SAR>**

| Plot No. | Band     | Mode          | Test Position | Gap (mm) | Ch. | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 10g SAR (W/kg) | Reported 10g SAR (W/kg) |
|----------|----------|---------------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|-------------------------|-------------------------|
| 59       | WLAN5GHz | 802.11a 6Mbps | Left Side     | 0mm      | 60  | 5300        | 17.27               | 17.5                | 1.054                  | 98.28        | 1.018                     | -0.12            | 0.845                   | 0.907                   |
| 60       | WLAN5GHz | 802.11a 6Mbps | Left Side     | 0mm      | 116 | 5580        | 17.18               | 17.5                | 1.076                  | 98.28        | 1.018                     | -0.07            | 0.803                   | 0.880                   |

## **14. Mod SAR Test Results : Mod attached on IHDT56XJ1**

### **General Note:**

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
  - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
  - b. For LTE: Reported SAR(W/kg)= Measured SAR(W/kg)\*Tune-up Scaling Factor
  - c. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix  $63.3\%/62.9\% = 1.006$  is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)\* Tune-up Scaling Factor\* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
  - $\leq 0.8$  W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\leq 100$  MHz
  - $\leq 0.6$  W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
  - $\leq 0.4$  W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\geq 200$  MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is  $\geq 0.8$ W/kg.
4. When the hotspot mode is enabled, power reduction will be active to limit the maximum power of LTE B2/B4/B5/B66/B48; the detail power reduction description is including in the operation description.
5. The device employs proximity sensors that detect the presence of the user's body and handheld of the device. When these conditions are detected, LTE B2/B4/B5/B66/B48 reduced power will be active.
6. When body-worn condition is higher than 1.2W/kg, a headset attached to the handset is not necessary; due to the device does not support headset accessory.
7. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension  $> 15.0$  cm or an overall diagonal dimension  $> 16.0$  cm, when hotspot mode applies, 10-g product specific SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR  $> 1.2$  W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold, for this device only back SAR for LTE B2/B13/B48/B66 is necessary

### **LTE Note:**

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are  $\leq 0.8$  W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is  $> 1.45$  W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is  $>$  not  $\frac{1}{2}$  dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is  $>$  not  $\frac{1}{2}$  dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B5 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE band 4 SAR test was covered by Band 66; according to TCB workshop, SAR test for overlapping LTE bands can be reduced if
  - a. The maximum output power, including tolerance, for the smaller band is  $\leq$  the larger band to qualify for the SAR test exclusion.
  - b. The channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band.

**14.1 SAR Test Results (Phone WWAN Tx OFF)****<Head SAR>****<FDD LTE >**

| Plot No. | Band            | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.    | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-----------------|----------|------------|---------|-----------|---------------|----------|--------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 61       | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Right Cheek   | 0mm      | 18700  | 1860        | 23.99               | 24.00               | 1.002                  | -0.09            | 0.305                  | 0.306                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Right Cheek   | 0mm      | 18700  | 1860        | 22.92               | 23.00               | 1.019                  | -0.04            | 0.206                  | 0.210                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Right Tilted  | 0mm      | 18700  | 1860        | 23.99               | 24.00               | 1.002                  | 0                | 0.189                  | 0.189                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Right Tilted  | 0mm      | 18700  | 1860        | 22.92               | 23.00               | 1.019                  | -0.12            | 0.148                  | 0.151                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Left Cheek    | 0mm      | 18700  | 1860        | 23.99               | 24.00               | 1.002                  | 0.18             | 0.104                  | 0.104                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Left Cheek    | 0mm      | 18700  | 1860        | 22.92               | 23.00               | 1.019                  | -0.11            | 0.084                  | 0.086                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Left Tilted   | 0mm      | 18700  | 1860        | 23.99               | 24.00               | 1.002                  | -0.04            | 0.057                  | 0.057                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Left Tilted   | 0mm      | 18700  | 1860        | 22.92               | 23.00               | 1.019                  | -0.15            | 0.057                  | 0.058                  |
| 62       | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Right Cheek   | 0mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | -0.17            | 0.172                  | 0.190                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Right Cheek   | 0mm      | 20525  | 836.5       | 22.62               | 23.00               | 1.091                  | -0.11            | 0.146                  | 0.159                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Right Tilted  | 0mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | -0.01            | 0.098                  | 0.108                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Right Tilted  | 0mm      | 20525  | 836.5       | 22.62               | 23.00               | 1.091                  | 0.01             | 0.083                  | 0.091                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Left Cheek    | 0mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | -0.17            | 0.110                  | 0.122                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Left Cheek    | 0mm      | 20525  | 836.5       | 22.62               | 23.00               | 1.091                  | -0.06            | 0.095                  | 0.104                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Left Tilted   | 0mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | 0.15             | 0.079                  | 0.087                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Left Tilted   | 0mm      | 20525  | 836.5       | 22.62               | 23.00               | 1.091                  | 0.08             | 0.066                  | 0.072                  |
| 63       | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Right Cheek   | 0mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | -0.17            | 0.142                  | 0.160                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Right Cheek   | 0mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | -0.01            | 0.118                  | 0.129                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Right Tilted  | 0mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | 0.04             | 0.090                  | 0.101                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Right Tilted  | 0mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | -0.05            | 0.075                  | 0.082                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Left Cheek    | 0mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | 0.09             | 0.100                  | 0.112                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Left Cheek    | 0mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | 0                | 0.083                  | 0.091                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Left Tilted   | 0mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | 0.09             | 0.062                  | 0.070                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Left Tilted   | 0mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | -0.05            | 0.053                  | 0.058                  |
| 64       | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Right Cheek   | 0mm      | 132322 | 1745        | 23.99               | 24.00               | 1.002                  | 0.11             | 0.168                  | 0.168                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Right Cheek   | 0mm      | 132322 | 1745        | 22.91               | 23.00               | 1.021                  | 0.01             | 0.137                  | 0.140                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Right Tilted  | 0mm      | 132322 | 1745        | 23.99               | 24.00               | 1.002                  | -0.19            | 0.087                  | 0.087                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Right Tilted  | 0mm      | 132322 | 1745        | 22.91               | 23.00               | 1.021                  | 0.01             | 0.072                  | 0.074                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Left Cheek    | 0mm      | 132322 | 1745        | 23.99               | 24.00               | 1.002                  | 0.07             | 0.072                  | 0.072                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Left Cheek    | 0mm      | 132322 | 1745        | 22.91               | 23.00               | 1.021                  | 0                | 0.073                  | 0.075                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Left Tilted   | 0mm      | 132322 | 1745        | 23.99               | 24.00               | 1.002                  | 0.16             | 0.057                  | 0.057                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Left Tilted   | 0mm      | 132322 | 1745        | 22.91               | 23.00               | 1.021                  | 0.09             | 0.045                  | 0.046                  |

**<TDD LTE SAR>**

| Plot No. | Band            | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.   | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-----------------|----------|------------|---------|-----------|---------------|----------|-------|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Right Cheek   | 0mm      | 56640 | 3690        | 22.16               | 23.50               | 1.361                  | 62.9         | 1.006                     | 0.13             | 0.088                  | 0.121                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Right Cheek   | 0mm      | 56150 | 3641        | 21.44               | 22.50               | 1.276                  | 62.9         | 1.006                     | -0.08            | 0.071                  | 0.091                  |
| 65       | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Right Tilted  | 0mm      | 56640 | 3690        | 22.16               | 23.50               | 1.361                  | 62.9         | 1.006                     | 0.03             | 0.093                  | 0.127                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Right Tilted  | 0mm      | 56150 | 3641        | 21.44               | 22.50               | 1.276                  | 62.9         | 1.006                     | 0.18             | 0.065                  | 0.083                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Left Cheek    | 0mm      | 56640 | 3690        | 22.16               | 23.50               | 1.361                  | 62.9         | 1.006                     | 0.08             | 0.087                  | 0.119                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Left Cheek    | 0mm      | 56150 | 3641        | 21.44               | 22.50               | 1.276                  | 62.9         | 1.006                     | 0.07             | 0.071                  | 0.091                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Left Tilted   | 0mm      | 56640 | 3690        | 22.16               | 23.50               | 1.361                  | 62.9         | 1.006                     | 0.02             | 0.024                  | 0.033                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Left Tilted   | 0mm      | 56150 | 3641        | 21.44               | 22.50               | 1.276                  | 62.9         | 1.006                     | 0.07             | 0.018                  | 0.023                  |



## &lt;Hotspot SAR&gt;

## &lt;FDD LTE SAR&gt;

| Plot No. | Band            | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.    | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-----------------|----------|------------|---------|-----------|---------------|----------|--------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 18700  | 1860        | 14.97               | 15.00               | 1.007                  | 0.1              | 0.020                  | 0.020                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 18700  | 1860        | 14.49               | 15.00               | 1.125                  | 0.18             | 0.017                  | 0.019                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 18700  | 1860        | 14.97               | 15.00               | 1.007                  | -0.05            | 1.240                  | 1.249                  |
| 66       | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 18900  | 1880        | 14.87               | 15.00               | 1.030                  | -0.12            | 1.340                  | 1.381                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 19100  | 1900        | 14.88               | 15.00               | 1.028                  | -0.13            | 1.240                  | 1.275                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 18700  | 1860        | 14.49               | 15.00               | 1.125                  | 0.03             | 1.050                  | 1.181                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 18900  | 1880        | 14.42               | 15.00               | 1.143                  | 0.04             | 1.100                  | 1.257                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 19100  | 1900        | 14.45               | 15.00               | 1.135                  | 0.12             | 1.040                  | 1.180                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | 18700  | 1860        | 14.48               | 15.00               | 1.127                  | -0.07            | 1.010                  | 1.138                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Left Side     | 5mm      | 18700  | 1860        | 14.97               | 15.00               | 1.007                  | -0.05            | 0.498                  | 0.501                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Left Side     | 5mm      | 18700  | 1860        | 14.49               | 15.00               | 1.125                  | -0.18            | 0.415                  | 0.467                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Top Side      | 5mm      | 18700  | 1860        | 14.97               | 15.00               | 1.007                  | 0.03             | 0.026                  | 0.026                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Top Side      | 5mm      | 18700  | 1860        | 14.49               | 15.00               | 1.125                  | -0.04            | 0.021                  | 0.024                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Front         | 5mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | -0.01            | 0.122                  | 0.135                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Front         | 5mm      | 20525  | 836.5       | 22.62               | 23.00               | 1.091                  | -0.02            | 0.102                  | 0.111                  |
| 67       | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Back          | 5mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | -0.02            | 1.200                  | 1.328                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Back          | 5mm      | 20525  | 836.5       | 22.62               | 23.00               | 1.091                  | -0.03            | 0.969                  | 1.058                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 50      | 0         | Back          | 5mm      | 20525  | 836.5       | 22.55               | 23.00               | 1.091                  | -0.01            | 0.924                  | 1.025                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Left Side     | 5mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | -0.03            | 0.427                  | 0.473                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Left Side     | 5mm      | 20525  | 836.5       | 22.62               | 23.00               | 1.091                  | -0.04            | 0.345                  | 0.377                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Right Side    | 5mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | 0.02             | 0.137                  | 0.152                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Right Side    | 5mm      | 20525  | 836.5       | 22.62               | 23.00               | 1.091                  | 0.01             | 0.081                  | 0.088                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Top Side      | 5mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | -0.05            | 0.054                  | 0.060                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Top Side      | 5mm      | 20525  | 836.5       | 22.62               | 23.00               | 1.091                  | -0.04            | 0.046                  | 0.050                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Front         | 5mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | 0                | 0.115                  | 0.129                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Front         | 5mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | 0.02             | 0.096                  | 0.105                  |
| 68       | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Back          | 5mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | -0.05            | 1.230                  | 1.383                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Back          | 5mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | -0.03            | 0.996                  | 1.090                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 50      | 0         | Back          | 5mm      | 23230  | 782         | 22.52               | 23.00               | 1.117                  | -0.15            | 0.905                  | 1.011                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Left Side     | 5mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | -0.07            | 0.529                  | 0.595                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Left Side     | 5mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | 0.07             | 0.431                  | 0.471                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Top Side      | 5mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | 0.01             | 0.040                  | 0.045                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Top Side      | 5mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | 0.07             | 0.037                  | 0.040                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 132322 | 1745        | 15.73               | 16.00               | 1.064                  | 0.13             | 0.020                  | 0.021                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 132322 | 1745        | 15.23               | 16.00               | 1.194                  | 0.15             | 0.016                  | 0.019                  |
| 69       | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132322 | 1745        | 15.73               | 16.00               | 1.064                  | 0.09             | 1.190                  | 1.266                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132072 | 1720        | 15.69               | 16.00               | 1.074                  | 0.16             | 1.120                  | 1.203                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132572 | 1770        | 15.55               | 16.00               | 1.109                  | 0.11             | 0.910                  | 1.009                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 132322 | 1745        | 15.23               | 16.00               | 1.194                  | -0.03            | 0.990                  | 1.182                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 132072 | 1720        | 15.19               | 16.00               | 1.205                  | 0.03             | 0.957                  | 1.153                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 132572 | 1770        | 15.08               | 16.00               | 1.236                  | 0.13             | 0.816                  | 1.009                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | 132322 | 1745        | 15.18               | 16.00               | 1.208                  | 0.19             | 0.991                  | 1.197                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Left Side     | 5mm      | 132322 | 1745        | 15.73               | 16.00               | 1.064                  | 0.01             | 0.444                  | 0.472                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Left Side     | 5mm      | 132322 | 1745        | 15.23               | 16.00               | 1.194                  | 0.03             | 0.375                  | 0.448                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Top Side      | 5mm      | 132322 | 1745        | 15.73               | 16.00               | 1.064                  | 0.04             | 0.014                  | 0.015                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Top Side      | 5mm      | 132322 | 1745        | 15.23               | 16.00               | 1.194                  | 0.09             | 0.011                  | 0.013                  |



**<TDD LTE SAR>**

| Plot No. | Band            | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.   | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-----------------|----------|------------|---------|-----------|---------------|----------|-------|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 56640 | 3690        | 20.90               | 22.00               | 1.288                  | 62.9         | 1.006                     | -0.03            | 0.238                  | 0.308                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 56640 | 3690        | 20.58               | 22.00               | 1.387                  | 62.9         | 1.006                     | -0.1             | 0.157                  | 0.219                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 56640 | 3690        | 20.90               | 22.00               | 1.288                  | 62.9         | 1.006                     | -0.01            | 0.859                  | 1.113                  |
| 70       | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Back          | 5mm      | 55340 | 3560        | 20.80               | 22.00               | 1.318                  | 62.9         | 1.006                     | -0.14            | 0.931                  | 1.235                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Back          | 5mm      | 55830 | 3609        | 20.61               | 22.00               | 1.377                  | 62.9         | 1.006                     | -0.05            | 0.796                  | 1.103                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Back          | 5mm      | 56150 | 3641        | 20.56               | 22.00               | 1.393                  | 62.9         | 1.006                     | -0.12            | 0.802                  | 1.124                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 56640 | 3690        | 20.58               | 22.00               | 1.387                  | 62.9         | 1.006                     | 0.02             | 0.713                  | 0.995                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 24        | Back          | 5mm      | 55340 | 3560        | 20.38               | 22.00               | 1.452                  | 62.9         | 1.006                     | 0.02             | 0.699                  | 1.021                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 55830 | 3609        | 20.36               | 22.00               | 1.459                  | 62.9         | 1.006                     | 0.12             | 0.677                  | 0.994                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 56150 | 3641        | 20.40               | 22.00               | 1.445                  | 62.9         | 1.006                     | 0.01             | 0.693                  | 1.008                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | 56640 | 3690        | 19.00               | 20.00               | 1.259                  | 62.9         | 1.006                     | 0                | 0.683                  | 0.865                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Left Side     | 5mm      | 56640 | 3690        | 20.90               | 22.00               | 1.288                  | 62.9         | 1.006                     | 0.1              | 0.766                  | 0.993                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Left Side     | 5mm      | 55340 | 3560        | 20.80               | 22.00               | 1.318                  | 62.9         | 1.006                     | 0.14             | 0.705                  | 0.935                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Left Side     | 5mm      | 55830 | 3609        | 20.61               | 22.00               | 1.377                  | 62.9         | 1.006                     | 0.01             | 0.581                  | 0.805                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Left Side     | 5mm      | 56150 | 3641        | 20.56               | 22.00               | 1.393                  | 62.9         | 1.006                     | 0.02             | 0.605                  | 0.848                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Left Side     | 5mm      | 56640 | 3690        | 20.58               | 22.00               | 1.387                  | 62.9         | 1.006                     | 0.07             | 0.561                  | 0.783                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 24        | Left Side     | 5mm      | 55340 | 3560        | 20.38               | 22.00               | 1.452                  | 62.9         | 1.006                     | 0.05             | 0.553                  | 0.808                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Left Side     | 5mm      | 55830 | 3609        | 20.36               | 22.00               | 1.459                  | 62.9         | 1.006                     | 0.03             | 0.532                  | 0.781                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Left Side     | 5mm      | 56150 | 3641        | 20.40               | 22.00               | 1.445                  | 62.9         | 1.006                     | 0.1              | 0.547                  | 0.795                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 100     | 0         | Left Side     | 5mm      | 56640 | 3690        | 19.00               | 20.00               | 1.259                  | 62.9         | 1.006                     | 0.03             | 0.559                  | 0.708                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Bottom Side   | 5mm      | 56640 | 3690        | 20.90               | 22.00               | 1.288                  | 62.9         | 1.006                     | 0.04             | 0.316                  | 0.410                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Bottom Side   | 5mm      | 56640 | 3690        | 20.58               | 22.00               | 1.387                  | 62.9         | 1.006                     | -0.04            | 0.251                  | 0.350                  |

**<Body Worn Accessory SAR>**
**<FDD LTE SAR>**

| Plot No. | Band            | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.    | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-----------------|----------|------------|---------|-----------|---------------|----------|--------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 18700  | 1860        | 23.99               | 24.00               | 1.002                  | 0.12             | 0.203                  | 0.203                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 18700  | 1860        | 22.92               | 23.00               | 1.019                  | 0.1              | 0.168                  | 0.171                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 18700  | 1860        | 14.97               | 15.00               | 1.007                  | -0.05            | 1.240                  | 1.249                  |
| 71       | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 18900  | 1880        | 14.87               | 15.00               | 1.030                  | -0.12            | 1.340                  | 1.381                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 19100  | 1900        | 14.88               | 15.00               | 1.028                  | -0.13            | 1.240                  | 1.275                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 18700  | 1860        | 14.49               | 15.00               | 1.125                  | 0.03             | 1.050                  | 1.181                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 18900  | 1880        | 14.42               | 15.00               | 1.143                  | 0.04             | 1.100                  | 1.257                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 19100  | 1900        | 14.45               | 15.00               | 1.135                  | 0.12             | 1.040                  | 1.180                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | 18700  | 1860        | 14.48               | 15.00               | 1.127                  | -0.07            | 1.010                  | 1.138                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Front         | 5mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | -0.01            | 0.122                  | 0.135                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Front         | 5mm      | 20525  | 836.5       | 22.62               | 23.00               | 1.091                  | -0.02            | 0.102                  | 0.111                  |
| 72       | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Back          | 5mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | -0.02            | 1.200                  | 1.328                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Back          | 5mm      | 20525  | 836.5       | 22.62               | 23.00               | 1.091                  | -0.03            | 0.969                  | 1.058                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 50      | 0         | Back          | 5mm      | 20525  | 836.5       | 22.55               | 23.00               | 1.091                  | -0.01            | 0.924                  | 1.025                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Front         | 5mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | 0                | 0.115                  | 0.129                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Front         | 5mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | 0.02             | 0.096                  | 0.105                  |
| 73       | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Back          | 5mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | -0.05            | 1.230                  | 1.383                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Back          | 5mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | -0.03            | 0.996                  | 1.090                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 50      | 0         | Back          | 5mm      | 23230  | 782         | 22.52               | 23.00               | 1.117                  | -0.15            | 0.905                  | 1.011                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 132322 | 1745        | 23.99               | 24.00               | 1.002                  | 0.11             | 0.137                  | 0.137                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 132322 | 1745        | 22.91               | 23.00               | 1.021                  | 0.1              | 0.107                  | 0.109                  |
| 74       | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132322 | 1745        | 15.73               | 16.00               | 1.064                  | 0.09             | 1.190                  | 1.266                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132072 | 1720        | 15.69               | 16.00               | 1.074                  | 0.16             | 1.120                  | 1.203                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132572 | 1770        | 15.55               | 16.00               | 1.109                  | 0.11             | 0.910                  | 1.009                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 132322 | 1745        | 15.23               | 16.00               | 1.194                  | -0.03            | 0.990                  | 1.182                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 132072 | 1720        | 15.19               | 16.00               | 1.205                  | 0.03             | 0.957                  | 1.153                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 132572 | 1770        | 15.08               | 16.00               | 1.236                  | 0.13             | 0.816                  | 1.009                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | 132322 | 1745        | 15.18               | 16.00               | 1.208                  | 0.19             | 0.991                  | 1.197                  |

**<TDD LTE SAR>**

| Plot No. | Band            | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.   | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-----------------|----------|------------|---------|-----------|---------------|----------|-------|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 56640 | 3690        | 22.16               | 23.50               | 1.361                  | 62.9         | 1.006                     | -0.19            | 0.169                  | 0.231                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 56640 | 3690        | 21.55               | 22.50               | 1.245                  | 62.9         | 1.006                     | 0.09             | 0.160                  | 0.200                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 56640 | 3690        | 20.90               | 22.00               | 1.288                  | 62.9         | 1.006                     | -0.01            | 0.859                  | 1.113                  |
| 75       | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Back          | 5mm      | 55340 | 3560        | 20.80               | 22.00               | 1.318                  | 62.9         | 1.006                     | -0.14            | 0.931                  | 1.235                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Back          | 5mm      | 55830 | 3609        | 20.61               | 22.00               | 1.377                  | 62.9         | 1.006                     | -0.05            | 0.796                  | 1.103                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Back          | 5mm      | 56150 | 3641        | 20.56               | 22.00               | 1.393                  | 62.9         | 1.006                     | -0.12            | 0.802                  | 1.124                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 56640 | 3690        | 20.58               | 22.00               | 1.387                  | 62.9         | 1.006                     | 0.02             | 0.713                  | 0.995                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 24        | Back          | 5mm      | 55340 | 3560        | 20.38               | 22.00               | 1.452                  | 62.9         | 1.006                     | 0.02             | 0.699                  | 1.021                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 55830 | 3609        | 20.36               | 22.00               | 1.459                  | 62.9         | 1.006                     | 0.12             | 0.677                  | 0.994                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 56150 | 3641        | 20.40               | 22.00               | 1.445                  | 62.9         | 1.006                     | 0.01             | 0.693                  | 1.008                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | 56640 | 3690        | 19.00               | 20.00               | 1.259                  | 62.9         | 1.006                     | 0                | 0.683                  | 0.865                  |

**<Product Specific SAR>****<FDD LTE SAR>**

| Plot No. | Band            | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.    | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 10g SAR (W/kg) | Reported 10g SAR (W/kg) |
|----------|-----------------|----------|------------|---------|-----------|---------------|----------|--------|-------------|---------------------|---------------------|------------------------|------------------|-------------------------|-------------------------|
| 76       | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Back          | 0mm      | 18700  | 1860        | 14.97               | 15.00               | 1.007                  | 0.15             | 0.397                   | 0.400                   |
| 77       | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Back          | 0mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | 0.03             | 0.703                   | 0.778                   |
| 78       | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Back          | 0mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | 0.01             | 0.825                   | 0.928                   |
| 79       | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Back          | 0mm      | 132322 | 1745        | 15.73               | 16.00               | 1.064                  | 0.11             | 0.475                   | 0.505                   |

**<TDD LTE SAR>**

| Plot No. | Band            | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.   | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 10g SAR (W/kg) | Reported 10g SAR (W/kg) |
|----------|-----------------|----------|------------|---------|-----------|---------------|----------|-------|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|-------------------------|-------------------------|
| 80       | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Back          | 0mm      | 56640 | 3690        | 20.90               | 22.00               | 1.288                  | 62.9         | 1.006                     | -0.06            | 1.250                   | 1.620                   |

**14.2 Mod SAR Test Results: Mod attached on IHDT56XJ1 (Phone WWAN Tx ON)****<Head SAR>****<FDD LTE >**

| Plot No. | Band            | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.    | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-----------------|----------|------------|---------|-----------|---------------|----------|--------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 61       | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Right Cheek   | 0mm      | 18700  | 1860        | 23.99               | 24.00               | 1.002                  | -0.09            | 0.305                  | 0.306                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Right Cheek   | 0mm      | 18700  | 1860        | 22.92               | 23.00               | 1.019                  | -0.04            | 0.206                  | 0.210                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Right Tilted  | 0mm      | 18700  | 1860        | 23.99               | 24.00               | 1.002                  | 0                | 0.189                  | 0.189                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Right Tilted  | 0mm      | 18700  | 1860        | 22.92               | 23.00               | 1.019                  | -0.12            | 0.148                  | 0.151                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Left Cheek    | 0mm      | 18700  | 1860        | 23.99               | 24.00               | 1.002                  | 0.18             | 0.104                  | 0.104                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Left Cheek    | 0mm      | 18700  | 1860        | 22.92               | 23.00               | 1.019                  | -0.11            | 0.084                  | 0.086                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Left Tilted   | 0mm      | 18700  | 1860        | 23.99               | 24.00               | 1.002                  | -0.04            | 0.057                  | 0.057                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Left Tilted   | 0mm      | 18700  | 1860        | 22.92               | 23.00               | 1.019                  | -0.15            | 0.057                  | 0.058                  |
| 62       | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Right Cheek   | 0mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | -0.17            | 0.172                  | 0.190                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Right Cheek   | 0mm      | 20525  | 836.5       | 22.62               | 23.00               | 1.091                  | -0.11            | 0.146                  | 0.159                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Right Tilted  | 0mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | -0.01            | 0.098                  | 0.108                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Right Tilted  | 0mm      | 20525  | 836.5       | 22.62               | 23.00               | 1.091                  | 0.01             | 0.083                  | 0.091                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Left Cheek    | 0mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | -0.17            | 0.110                  | 0.122                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Left Cheek    | 0mm      | 20525  | 836.5       | 22.62               | 23.00               | 1.091                  | -0.06            | 0.095                  | 0.104                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Left Tilted   | 0mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | 0.15             | 0.079                  | 0.087                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Left Tilted   | 0mm      | 20525  | 836.5       | 22.62               | 23.00               | 1.091                  | 0.08             | 0.066                  | 0.072                  |
| 63       | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Right Cheek   | 0mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | -0.17            | 0.142                  | 0.160                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Right Cheek   | 0mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | -0.01            | 0.118                  | 0.129                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Right Tilted  | 0mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | 0.04             | 0.090                  | 0.101                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Right Tilted  | 0mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | -0.05            | 0.075                  | 0.082                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Left Cheek    | 0mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | 0.09             | 0.100                  | 0.112                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Left Cheek    | 0mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | 0                | 0.083                  | 0.091                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Left Tilted   | 0mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | 0.09             | 0.062                  | 0.070                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Left Tilted   | 0mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | -0.05            | 0.053                  | 0.058                  |
| 64       | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Right Cheek   | 0mm      | 132322 | 1745        | 23.99               | 24.00               | 1.002                  | 0.11             | 0.168                  | 0.168                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Right Cheek   | 0mm      | 132322 | 1745        | 22.91               | 23.00               | 1.021                  | 0.01             | 0.137                  | 0.140                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Right Tilted  | 0mm      | 132322 | 1745        | 23.99               | 24.00               | 1.002                  | -0.19            | 0.087                  | 0.087                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Right Tilted  | 0mm      | 132322 | 1745        | 22.91               | 23.00               | 1.021                  | 0.01             | 0.072                  | 0.074                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Left Cheek    | 0mm      | 132322 | 1745        | 23.99               | 24.00               | 1.002                  | 0.07             | 0.072                  | 0.072                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Left Cheek    | 0mm      | 132322 | 1745        | 22.91               | 23.00               | 1.021                  | 0                | 0.073                  | 0.075                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Left Tilted   | 0mm      | 132322 | 1745        | 23.99               | 24.00               | 1.002                  | 0.16             | 0.057                  | 0.057                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Left Tilted   | 0mm      | 132322 | 1745        | 22.91               | 23.00               | 1.021                  | 0.09             | 0.045                  | 0.046                  |

**Note:** TX power level when phone WWAN TX OFF is higher than when phone WWAN TX OFF, Head SAR test results in section 14.1 is referenced conservatively.

**<TDD LTE SAR>**

| Plot No. | Band            | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.   | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-----------------|----------|------------|---------|-----------|---------------|----------|-------|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Right Cheek   | 0mm      | 56640 | 3690        | 22.16               | 23.50               | 1.361                  | 62.9         | 1.006                     | 0.13             | 0.088                  | 0.121                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Right Cheek   | 0mm      | 56150 | 3641        | 21.44               | 22.50               | 1.276                  | 62.9         | 1.006                     | -0.08            | 0.071                  | 0.091                  |
| 65       | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Right Tilted  | 0mm      | 56640 | 3690        | 22.16               | 23.50               | 1.361                  | 62.9         | 1.006                     | 0.03             | 0.093                  | 0.127                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Right Tilted  | 0mm      | 56150 | 3641        | 21.44               | 22.50               | 1.276                  | 62.9         | 1.006                     | 0.18             | 0.065                  | 0.083                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Left Cheek    | 0mm      | 56640 | 3690        | 22.16               | 23.50               | 1.361                  | 62.9         | 1.006                     | 0.08             | 0.087                  | 0.119                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Left Cheek    | 0mm      | 56150 | 3641        | 21.44               | 22.50               | 1.276                  | 62.9         | 1.006                     | 0.07             | 0.071                  | 0.091                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Left Tilted   | 0mm      | 56640 | 3690        | 22.16               | 23.50               | 1.361                  | 62.9         | 1.006                     | 0.02             | 0.024                  | 0.033                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Left Tilted   | 0mm      | 56150 | 3641        | 21.44               | 22.50               | 1.276                  | 62.9         | 1.006                     | 0.07             | 0.018                  | 0.023                  |



## &lt;Hotspot SAR&gt;

## &lt;FDD LTE SAR&gt;

| Plot No. | Band            | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.    | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-----------------|----------|------------|---------|-----------|---------------|----------|--------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 18700  | 1860        | 14.97               | 15.00               | 1.007                  | 0.1              | 0.020                  | 0.020                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 18700  | 1860        | 14.49               | 15.00               | 1.125                  | 0.18             | 0.017                  | 0.019                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 18700  | 1860        | 14.97               | 15.00               | 1.007                  | -0.05            | 1.240                  | 1.249                  |
| 66       | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 18900  | 1880        | 14.87               | 15.00               | 1.030                  | -0.12            | 1.340                  | 1.381                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 19100  | 1900        | 14.88               | 15.00               | 1.028                  | -0.13            | 1.240                  | 1.275                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 18700  | 1860        | 14.49               | 15.00               | 1.125                  | 0.03             | 1.050                  | 1.181                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 18900  | 1880        | 14.42               | 15.00               | 1.143                  | 0.04             | 1.100                  | 1.257                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 19100  | 1900        | 14.45               | 15.00               | 1.135                  | 0.12             | 1.040                  | 1.180                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | 18700  | 1860        | 14.48               | 15.00               | 1.127                  | -0.07            | 1.010                  | 1.138                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Left Side     | 5mm      | 18700  | 1860        | 14.97               | 15.00               | 1.007                  | -0.05            | 0.498                  | 0.501                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Left Side     | 5mm      | 18700  | 1860        | 14.49               | 15.00               | 1.125                  | -0.18            | 0.415                  | 0.467                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Top Side      | 5mm      | 18700  | 1860        | 14.97               | 15.00               | 1.007                  | 0.03             | 0.026                  | 0.026                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Top Side      | 5mm      | 18700  | 1860        | 14.49               | 15.00               | 1.125                  | -0.04            | 0.021                  | 0.024                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Front         | 5mm      | 20525  | 836.5       | 22.00               | 22.50               | 1.122                  | -0.03            | 0.085                  | 0.095                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Front         | 5mm      | 20525  | 836.5       | 21.02               | 22.50               | 1.406                  | -0.03            | 0.065                  | 0.091                  |
| 81       | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Back          | 5mm      | 20525  | 836.5       | 22.00               | 22.50               | 1.122                  | -0.03            | 0.809                  | 0.908                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Back          | 5mm      | 20525  | 836.5       | 21.02               | 22.50               | 1.406                  | 0                | 0.640                  | 0.900                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 50      | 0         | Back          | 5mm      | 20525  | 836.5       | 20.99               | 22.50               | 1.416                  | -0.12            | 0.582                  | 0.824                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Left Side     | 5mm      | 20525  | 836.5       | 22.00               | 22.50               | 1.122                  | -0.07            | 0.251                  | 0.282                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Left Side     | 5mm      | 20525  | 836.5       | 21.02               | 22.50               | 1.406                  | -0.02            | 0.194                  | 0.273                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Top Side      | 5mm      | 20525  | 836.5       | 22.00               | 22.50               | 1.107                  | -0.05            | 0.054                  | 0.060                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Top Side      | 5mm      | 20525  | 836.5       | 21.02               | 22.50               | 1.091                  | -0.04            | 0.046                  | 0.050                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Front         | 5mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | 0                | 0.115                  | 0.129                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Front         | 5mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | 0.02             | 0.096                  | 0.105                  |
| 68       | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Back          | 5mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | -0.05            | 1.230                  | 1.383                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Back          | 5mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | -0.03            | 0.996                  | 1.090                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 50      | 0         | Back          | 5mm      | 23230  | 782         | 22.52               | 23.00               | 1.117                  | -0.15            | 0.905                  | 1.011                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Left Side     | 5mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | -0.07            | 0.529                  | 0.595                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Left Side     | 5mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | 0.07             | 0.431                  | 0.471                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Top Side      | 5mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | 0.01             | 0.040                  | 0.045                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Top Side      | 5mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | 0.07             | 0.037                  | 0.040                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 132322 | 1745        | 15.73               | 16.00               | 1.064                  | 0.13             | 0.020                  | 0.021                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 132322 | 1745        | 15.23               | 16.00               | 1.194                  | 0.15             | 0.016                  | 0.019                  |
| 69       | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132322 | 1745        | 15.73               | 16.00               | 1.064                  | 0.09             | 1.190                  | 1.266                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132072 | 1720        | 15.69               | 16.00               | 1.074                  | 0.16             | 1.120                  | 1.203                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132572 | 1770        | 15.55               | 16.00               | 1.109                  | 0.11             | 0.910                  | 1.009                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 132322 | 1745        | 15.23               | 16.00               | 1.194                  | -0.03            | 0.990                  | 1.182                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 132072 | 1720        | 15.19               | 16.00               | 1.205                  | 0.03             | 0.957                  | 1.153                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 132572 | 1770        | 15.08               | 16.00               | 1.236                  | 0.13             | 0.816                  | 1.009                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | 132322 | 1745        | 15.18               | 16.00               | 1.208                  | 0.19             | 0.991                  | 1.197                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Left Side     | 5mm      | 132322 | 1745        | 15.73               | 16.00               | 1.064                  | 0.01             | 0.444                  | 0.472                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Left Side     | 5mm      | 132322 | 1745        | 15.23               | 16.00               | 1.194                  | 0.03             | 0.375                  | 0.448                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Top Side      | 5mm      | 132322 | 1745        | 15.73               | 16.00               | 1.064                  | 0.04             | 0.014                  | 0.015                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Top Side      | 5mm      | 132322 | 1745        | 15.23               | 16.00               | 1.194                  | 0.09             | 0.011                  | 0.013                  |



**<TDD LTE SAR>**

| Plot No. | Band            | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.   | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-----------------|----------|------------|---------|-----------|---------------|----------|-------|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 56640 | 3690        | 20.90               | 22.00               | 1.288                  | 62.9         | 1.006                     | -0.03            | 0.238                  | 0.308                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 56640 | 3690        | 20.58               | 22.00               | 1.387                  | 62.9         | 1.006                     | -0.1             | 0.157                  | 0.219                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 56640 | 3690        | 20.90               | 22.00               | 1.288                  | 62.9         | 1.006                     | -0.01            | 0.859                  | 1.113                  |
| 70       | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Back          | 5mm      | 55340 | 3560        | 20.80               | 22.00               | 1.318                  | 62.9         | 1.006                     | -0.14            | 0.931                  | 1.235                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Back          | 5mm      | 55830 | 3609        | 20.61               | 22.00               | 1.377                  | 62.9         | 1.006                     | -0.05            | 0.796                  | 1.103                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Back          | 5mm      | 56150 | 3641        | 20.56               | 22.00               | 1.393                  | 62.9         | 1.006                     | -0.12            | 0.802                  | 1.124                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 56640 | 3690        | 20.58               | 22.00               | 1.387                  | 62.9         | 1.006                     | 0.02             | 0.713                  | 0.995                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 24        | Back          | 5mm      | 55340 | 3560        | 20.38               | 22.00               | 1.452                  | 62.9         | 1.006                     | 0.02             | 0.699                  | 1.021                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 55830 | 3609        | 20.36               | 22.00               | 1.459                  | 62.9         | 1.006                     | 0.12             | 0.677                  | 0.994                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 56150 | 3641        | 20.40               | 22.00               | 1.445                  | 62.9         | 1.006                     | 0.01             | 0.693                  | 1.008                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | 56640 | 3690        | 19.00               | 20.00               | 1.259                  | 62.9         | 1.006                     | 0                | 0.683                  | 0.865                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Left Side     | 5mm      | 56640 | 3690        | 20.90               | 22.00               | 1.288                  | 62.9         | 1.006                     | 0.1              | 0.766                  | 0.993                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Left Side     | 5mm      | 55340 | 3560        | 20.80               | 22.00               | 1.318                  | 62.9         | 1.006                     | 0.14             | 0.705                  | 0.935                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Left Side     | 5mm      | 55830 | 3609        | 20.61               | 22.00               | 1.377                  | 62.9         | 1.006                     | 0.01             | 0.581                  | 0.805                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Left Side     | 5mm      | 56150 | 3641        | 20.56               | 22.00               | 1.393                  | 62.9         | 1.006                     | 0.02             | 0.605                  | 0.848                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Left Side     | 5mm      | 56640 | 3690        | 20.58               | 22.00               | 1.387                  | 62.9         | 1.006                     | 0.07             | 0.561                  | 0.783                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 24        | Left Side     | 5mm      | 55340 | 3560        | 20.38               | 22.00               | 1.452                  | 62.9         | 1.006                     | 0.05             | 0.553                  | 0.808                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Left Side     | 5mm      | 55830 | 3609        | 20.36               | 22.00               | 1.459                  | 62.9         | 1.006                     | 0.03             | 0.532                  | 0.781                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Left Side     | 5mm      | 56150 | 3641        | 20.40               | 22.00               | 1.445                  | 62.9         | 1.006                     | 0.1              | 0.547                  | 0.795                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 100     | 0         | Left Side     | 5mm      | 56640 | 3690        | 19.00               | 20.00               | 1.259                  | 62.9         | 1.006                     | 0.03             | 0.559                  | 0.708                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Bottom Side   | 5mm      | 56640 | 3690        | 20.90               | 22.00               | 1.288                  | 62.9         | 1.006                     | 0.04             | 0.316                  | 0.410                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Bottom Side   | 5mm      | 56640 | 3690        | 20.58               | 22.00               | 1.387                  | 62.9         | 1.006                     | -0.04            | 0.251                  | 0.350                  |

**<Body Worn Accessory SAR>**
**<FDD LTE SAR>**

| Plot No. | Band            | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.    | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-----------------|----------|------------|---------|-----------|---------------|----------|--------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 18700  | 1860        | 23.99               | 24.00               | 1.002                  | 0.12             | 0.203                  | 0.203                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 18700  | 1860        | 22.92               | 23.00               | 1.019                  | 0.1              | 0.168                  | 0.171                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 18700  | 1860        | 14.97               | 15.00               | 1.007                  | -0.05            | 1.240                  | 1.249                  |
| 71       | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 18900  | 1880        | 14.87               | 15.00               | 1.030                  | -0.12            | 1.340                  | 1.381                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 19100  | 1900        | 14.88               | 15.00               | 1.028                  | -0.13            | 1.240                  | 1.275                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 18700  | 1860        | 14.49               | 15.00               | 1.125                  | 0.03             | 1.050                  | 1.181                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 18900  | 1880        | 14.42               | 15.00               | 1.143                  | 0.04             | 1.100                  | 1.257                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 19100  | 1900        | 14.45               | 15.00               | 1.135                  | 0.12             | 1.040                  | 1.180                  |
|          | LTE Band 2_MOD  | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | 18700  | 1860        | 14.48               | 15.00               | 1.127                  | -0.07            | 1.010                  | 1.138                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Front         | 5mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | -0.01            | 0.122                  | 0.135                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Front         | 5mm      | 20525  | 836.5       | 22.62               | 23.00               | 1.091                  | -0.02            | 0.102                  | 0.111                  |
| 82       | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Back          | 5mm      | 20525  | 836.5       | 22.00               | 22.50               | 1.122                  | -0.03            | 0.809                  | 0.908                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 25      | 0         | Back          | 5mm      | 20525  | 836.5       | 21.02               | 22.50               | 1.406                  | 0                | 0.640                  | 0.900                  |
|          | LTE Band 5_MOD  | 10M      | QPSK       | 50      | 0         | Back          | 5mm      | 20525  | 836.5       | 20.99               | 22.50               | 1.416                  | -0.12            | 0.582                  | 0.824                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Front         | 5mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | 0                | 0.115                  | 0.129                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Front         | 5mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | 0.02             | 0.096                  | 0.105                  |
| 73       | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Back          | 5mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | -0.05            | 1.230                  | 1.383                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 25      | 0         | Back          | 5mm      | 23230  | 782         | 22.61               | 23.00               | 1.094                  | -0.03            | 0.996                  | 1.090                  |
|          | LTE Band 13_MOD | 10M      | QPSK       | 50      | 0         | Back          | 5mm      | 23230  | 782         | 22.52               | 23.00               | 1.117                  | -0.15            | 0.905                  | 1.011                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 132322 | 1745        | 23.99               | 24.00               | 1.002                  | 0.11             | 0.137                  | 0.137                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 132322 | 1745        | 22.91               | 23.00               | 1.021                  | 0.1              | 0.107                  | 0.109                  |
| 74       | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132322 | 1745        | 15.73               | 16.00               | 1.064                  | 0.09             | 1.190                  | 1.266                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132072 | 1720        | 15.69               | 16.00               | 1.074                  | 0.16             | 1.120                  | 1.203                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132572 | 1770        | 15.55               | 16.00               | 1.109                  | 0.11             | 0.910                  | 1.009                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 132322 | 1745        | 15.23               | 16.00               | 1.194                  | -0.03            | 0.990                  | 1.182                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 132072 | 1720        | 15.19               | 16.00               | 1.205                  | 0.03             | 0.957                  | 1.153                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 132572 | 1770        | 15.08               | 16.00               | 1.236                  | 0.13             | 0.816                  | 1.009                  |
|          | LTE Band 66_MOD | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | 132322 | 1745        | 15.18               | 16.00               | 1.208                  | 0.19             | 0.991                  | 1.197                  |

**<TDD LTE SAR>**

| Plot No. | Band            | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.   | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-----------------|----------|------------|---------|-----------|---------------|----------|-------|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 56640 | 3690        | 22.16               | 23.50               | 1.361                  | 62.9         | 1.006                     | -0.19            | 0.169                  | 0.231                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 56640 | 3690        | 21.55               | 22.50               | 1.245                  | 62.9         | 1.006                     | 0.09             | 0.160                  | 0.200                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 56640 | 3690        | 20.90               | 22.00               | 1.288                  | 62.9         | 1.006                     | -0.01            | 0.859                  | 1.113                  |
| 75       | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Back          | 5mm      | 55340 | 3560        | 20.80               | 22.00               | 1.318                  | 62.9         | 1.006                     | -0.14            | 0.931                  | 1.235                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Back          | 5mm      | 55830 | 3609        | 20.61               | 22.00               | 1.377                  | 62.9         | 1.006                     | -0.05            | 0.796                  | 1.103                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Back          | 5mm      | 56150 | 3641        | 20.56               | 22.00               | 1.393                  | 62.9         | 1.006                     | -0.12            | 0.802                  | 1.124                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 56640 | 3690        | 20.58               | 22.00               | 1.387                  | 62.9         | 1.006                     | 0.02             | 0.713                  | 0.995                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 24        | Back          | 5mm      | 55340 | 3560        | 20.38               | 22.00               | 1.452                  | 62.9         | 1.006                     | 0.02             | 0.699                  | 1.021                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 55830 | 3609        | 20.36               | 22.00               | 1.459                  | 62.9         | 1.006                     | 0.12             | 0.677                  | 0.994                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 56150 | 3641        | 20.40               | 22.00               | 1.445                  | 62.9         | 1.006                     | 0.01             | 0.693                  | 1.008                  |
|          | LTE Band 48_MOD | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | 56640 | 3690        | 19.00               | 20.00               | 1.259                  | 62.9         | 1.006                     | 0                | 0.683                  | 0.865                  |

**<Product Specific SAR>****<FDD LTE SAR>**

| Plot No. | Band            | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.    | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 10g SAR (W/kg) | Reported 10g SAR (W/kg) |
|----------|-----------------|----------|------------|---------|-----------|---------------|----------|--------|-------------|---------------------|---------------------|------------------------|------------------|-------------------------|-------------------------|
| 76       | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Back          | 0mm      | 18700  | 1860        | 14.97               | 15.00               | 1.007                  | 0.15             | 0.397                   | 0.400                   |
| 77       | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Back          | 0mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | 0.03             | 0.703                   | 0.778                   |
| 78       | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Back          | 0mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | 0.01             | 0.825                   | 0.928                   |
| 79       | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Back          | 0mm      | 132322 | 1745        | 15.73               | 16.00               | 1.064                  | 0.11             | 0.475                   | 0.505                   |

**<TDD LTE SAR>**

| Plot No. | Band            | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.   | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 10g SAR (W/kg) | Reported 10g SAR (W/kg) |
|----------|-----------------|----------|------------|---------|-----------|---------------|----------|-------|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|-------------------------|-------------------------|
| 80       | LTE Band 48_MOD | 20M      | QPSK       | 1       | 0         | Back          | 0mm      | 56640 | 3690        | 20.90               | 22.00               | 1.288                  | 62.9         | 1.006                     | -0.06            | 1.250                   | 1.620                   |



### **14.3 Repeated SAR Measurement**

| No. | Band            | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Ch.    | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Ratio | Reported 1g SAR (W/kg) |
|-----|-----------------|----------|------------|---------|-----------|---------------|----------|--------|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|-------|------------------------|
| 1st | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 18900  | 1880        | 14.87               | 15.00               | 1.030                  | -            | 1.000                     | -0.12            | 1.340                  | -     | 1.381                  |
| 2nd | LTE Band 2_MOD  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 18900  | 1880        | 14.87               | 15.00               | 1.030                  | -            | 1.000                     | -0.05            | 1.260                  | 1.06  | 1.298                  |
| 1st | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Back          | 5mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | -            | 1.000                     | -0.02            | 1.200                  | -     | 1.328                  |
| 2nd | LTE Band 5_MOD  | 10M      | QPSK       | 1       | 0         | Back          | 5mm      | 20525  | 836.5       | 23.56               | 24.00               | 1.107                  | -            | 1.000                     | -0.01            | 1.140                  | 1.05  | 1.262                  |
| 1st | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Back          | 5mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | -            | 1.000                     | -0.05            | 1.230                  | -     | 1.383                  |
| 2nd | LTE Band 13_MOD | 10M      | QPSK       | 1       | 0         | Back          | 5mm      | 23230  | 782         | 23.49               | 24.00               | 1.125                  | -            | 1.000                     | -0.15            | 1.130                  | 1.09  | 1.271                  |
| 1st | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132322 | 1745        | 15.73               | 16.00               | 1.064                  | -            | 1.000                     | 0.09             | 1.190                  | -     | 1.266                  |
| 2nd | LTE Band 66_MOD | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132322 | 1745        | 15.73               | 16.00               | 1.064                  | -            | 1.000                     | 0.1              | 1.150                  | 1.03  | 1.224                  |
| 1st | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Back          | 5mm      | 55340  | 3560        | 20.80               | 22.00               | 1.318                  | 62.9         | 1.006                     | -0.14            | 0.931                  | -     | 1.235                  |
| 2nd | LTE Band 48_MOD | 20M      | QPSK       | 1       | 99        | Back          | 5mm      | 55340  | 3560        | 20.80               | 22.00               | 1.318                  | 62.9         | 1.006                     | 0.07             | 0.789                  | 1.18  | 1.046                  |

**General Note:**

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is  $\geq 0.8\text{W/kg}$ .
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is  $\leq 1.2$  and the measured SAR  $< 1.45\text{W/kg}$ , only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated *measured SAR*.  
All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.



## 15. Simultaneous Transmission Analysis

| Simultaneous configuration                                               |     |
|--------------------------------------------------------------------------|-----|
| Mod WWAN LTE Bands+5GNR n261                                             | Yes |
| Phone WLAN 2.4GHz/5GHz+Mod LTE Bands + 5GNR n261                         | Yes |
| Phone WWAN LTE bands+ phone WLAN 2.4GHz/5GHz+ Mod LTE Bands + 5GNR n261  | Yes |
| Phone WWAN CDMA bands+ phone WLAN 2.4GHz/5GHz+ Mod LTE Bands + 5GNR n261 | Yes |

**Note:**

1. Simultaneous transmission with 5GNR n261 power density was evaluated in the RF exposure report (Sporton report number: FA890514B). This section covers the simultaneous transmission in sub-6 GHz range
2. As explained in section 14.1, IHDT56XJ1 SAR test results when Mod is attached were referenced from Sporton Report No: FA851503, except for the back position the test results in section 14.1 were used for analysis
3. The Scaled SAR summation is calculated based on the same configuration and test position.
4. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
  - i) Scalar SAR summation < 1.6W/kg.
  - ii)  $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$ , and the peak separation distance is determined from the square root of  $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$ , where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
  - iii) If  $SPLSR \leq 0.04$ , simultaneously transmission SAR measurement is not necessary.
  - iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
  - v) The SPLSR calculated results please refer to section 15.5.

**15.1 Head Exposure Conditions**

&lt;WWAN Tx On&gt;

| Head      |                   | IHDT56XJ1    |                   |                 |                 | IHDT56XL1    |              |               |               |               | Summation                  |                            |                            |                            |                             |                            |                            |                            |                            |                             |                            |                            |                            |                            |                             | Case No. | SPLSR  |               |
|-----------|-------------------|--------------|-------------------|-----------------|-----------------|--------------|--------------|---------------|---------------|---------------|----------------------------|----------------------------|----------------------------|----------------------------|-----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|-----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|-----------------------------|----------|--------|---------------|
| WWAN Band | Exposure Position | 1            | 2                 | 3               | 4               | 5            | 7            | 8             | 9             | 10            | 1+2+5 Summed 1g SAR (W/kg) | 1+2+7 Summed 1g SAR (W/kg) | 1+2+8 Summed 1g SAR (W/kg) | 1+2+9 Summed 1g SAR (W/kg) | 1+2+10 Summed 1g SAR (W/kg) | 1+3+5 Summed 1g SAR (W/kg) | 1+3+7 Summed 1g SAR (W/kg) | 1+3+8 Summed 1g SAR (W/kg) | 1+3+9 Summed 1g SAR (W/kg) | 1+3+10 Summed 1g SAR (W/kg) | 1+4+5 Summed 1g SAR (W/kg) | 1+4+7 Summed 1g SAR (W/kg) | 1+4+8 Summed 1g SAR (W/kg) | 1+4+9 Summed 1g SAR (W/kg) | 1+4+10 Summed 1g SAR (W/kg) |          |        |               |
|           |                   | WWAN         | 2.4GHz WLAN Ant 1 | 5GHz WLAN Ant 1 | Bluetooth Ant 1 | LTE B2 (MOD) | LTE B5 (MOD) | LTE B12 (MOD) | LTE B48 (MOD) | LTE B66 (MOD) |                            |                            |                            |                            |                             |                            |                            |                            |                            |                             |                            |                            |                            |                            |                             |          |        | 1g SAR (W/kg) |
| CDMA      | CDMA BC0          | Right Cheek  | 0.354             | 0.469           | 1.113           | 0.438        | 0.306        | 0.190         | 0.160         | 0.121         | 0.168                      | 1.129                      | 1.013                      | 0.983                      | 0.944                       | 0.991                      | 1.773                      | 1.657                      | 1.627                      | 1.588                       | 1.635                      | 1.098                      | 0.982                      | 0.952                      | 0.913                       | 0.960    | CASE 1 | 0.04          |
|           |                   | Right Tilted | 0.189             | 0.306           | 0.675           | 0.370        | 0.189        | 0.108         | 0.101         | 0.127         | 0.087                      | 0.684                      | 0.603                      | 0.596                      | 0.622                       | 0.582                      | 1.053                      | 0.972                      | 0.965                      | 0.991                       | 0.951                      | 0.748                      | 0.667                      | 0.660                      | 0.686                       | 0.646    |        |               |
|           |                   | Left Cheek   | 0.469             | 0.111           | 0.259           | 0.165        | 0.104        | 0.122         | 0.112         | 0.119         | 0.072                      | 0.684                      | 0.702                      | 0.692                      | 0.699                       | 0.652                      | 0.832                      | 0.850                      | 0.840                      | 0.847                       | 0.800                      | 0.738                      | 0.756                      | 0.746                      | 0.753                       | 0.706    |        |               |
|           |                   | Left Tilted  | 0.204             | 0.120           | 0.266           | 0.152        | 0.057        | 0.087         | 0.070         | 0.033         | 0.057                      | 0.381                      | 0.411                      | 0.394                      | 0.357                       | 0.381                      | 0.527                      | 0.557                      | 0.540                      | 0.503                       | 0.527                      | 0.413                      | 0.443                      | 0.426                      | 0.389                       | 0.413    |        |               |
|           | CDMA BC1          | Right Cheek  | 0.289             | 0.469           | 1.113           | 0.438        | 0.306        | 0.190         | 0.160         | 0.121         | 0.168                      | 1.064                      | 0.948                      | 0.918                      | 0.879                       | 0.926                      | 1.708                      | 1.592                      | 1.562                      | 1.523                       | 1.570                      | 1.033                      | 0.917                      | 0.887                      | 0.848                       | 0.895    | CASE 2 | 0.02          |
|           |                   | Right Tilted | 0.109             | 0.306           | 0.675           | 0.370        | 0.189        | 0.108         | 0.101         | 0.127         | 0.087                      | 0.604                      | 0.523                      | 0.516                      | 0.542                       | 0.502                      | 0.973                      | 0.892                      | 0.885                      | 0.911                       | 0.871                      | 0.668                      | 0.587                      | 0.580                      | 0.606                       | 0.566    |        |               |
|           |                   | Left Cheek   | 0.217             | 0.111           | 0.259           | 0.165        | 0.104        | 0.122         | 0.112         | 0.119         | 0.072                      | 0.432                      | 0.450                      | 0.440                      | 0.447                       | 0.400                      | 0.580                      | 0.598                      | 0.588                      | 0.595                       | 0.548                      | 0.486                      | 0.504                      | 0.494                      | 0.501                       | 0.454    |        |               |
|           |                   | Left Tilted  | 0.170             | 0.120           | 0.266           | 0.152        | 0.057        | 0.087         | 0.070         | 0.033         | 0.057                      | 0.347                      | 0.377                      | 0.360                      | 0.323                       | 0.347                      | 0.493                      | 0.523                      | 0.506                      | 0.469                       | 0.493                      | 0.379                      | 0.409                      | 0.392                      | 0.355                       | 0.379    |        |               |
| LTE       | LTE Band 2        | Right Cheek  | 0.316             | 0.469           | 1.113           | 0.438        | 0.306        | 0.190         | 0.160         | 0.121         | 0.168                      | 1.091                      | 0.975                      | 0.945                      | 0.906                       | 0.953                      | 1.735                      | 1.619                      | 1.589                      | 1.550                       | 1.597                      | 1.060                      | 0.944                      | 0.914                      | 0.875                       | 0.922    | CASE 3 | 0.02          |
|           |                   | Right Tilted | 0.114             | 0.306           | 0.675           | 0.370        | 0.189        | 0.108         | 0.101         | 0.127         | 0.087                      | 0.609                      | 0.528                      | 0.521                      | 0.547                       | 0.507                      | 0.978                      | 0.897                      | 0.890                      | 0.916                       | 0.876                      | 0.673                      | 0.592                      | 0.585                      | 0.611                       | 0.571    |        |               |
|           |                   | Left Cheek   | 0.256             | 0.111           | 0.259           | 0.165        | 0.104        | 0.122         | 0.112         | 0.119         | 0.072                      | 0.471                      | 0.489                      | 0.479                      | 0.486                       | 0.439                      | 0.619                      | 0.637                      | 0.627                      | 0.634                       | 0.587                      | 0.525                      | 0.543                      | 0.533                      | 0.540                       | 0.493    |        |               |
|           |                   | Left Tilted  | 0.202             | 0.120           | 0.266           | 0.152        | 0.057        | 0.087         | 0.070         | 0.033         | 0.057                      | 0.379                      | 0.409                      | 0.392                      | 0.355                       | 0.379                      | 0.525                      | 0.555                      | 0.538                      | 0.501                       | 0.525                      | 0.411                      | 0.441                      | 0.424                      | 0.387                       | 0.411    |        |               |
|           | LTE Band 5        | Right Cheek  | 0.263             | 0.469           | 1.113           | 0.438        | 0.306        | 0.190         | 0.160         | 0.121         | 0.168                      | 1.038                      | 0.922                      | 0.892                      | 0.853                       | 0.900                      | 1.682                      | 1.566                      | 1.536                      | 1.497                       | 1.544                      | 1.007                      | 0.891                      | 0.861                      | 0.822                       | 0.869    | CASE 4 | 0.03          |
|           |                   | Right Tilted | 0.135             | 0.306           | 0.675           | 0.370        | 0.189        | 0.108         | 0.101         | 0.127         | 0.087                      | 0.630                      | 0.549                      | 0.542                      | 0.568                       | 0.528                      | 0.999                      | 0.918                      | 0.911                      | 0.937                       | 0.897                      | 0.694                      | 0.613                      | 0.606                      | 0.632                       | 0.592    |        |               |
|           |                   | Left Cheek   | 0.326             | 0.111           | 0.259           | 0.165        | 0.104        | 0.122         | 0.112         | 0.119         | 0.072                      | 0.541                      | 0.559                      | 0.549                      | 0.556                       | 0.509                      | 0.689                      | 0.707                      | 0.697                      | 0.704                       | 0.657                      | 0.595                      | 0.613                      | 0.603                      | 0.610                       | 0.563    |        |               |
|           |                   | Left Tilted  | 0.159             | 0.120           | 0.266           | 0.152        | 0.057        | 0.087         | 0.070         | 0.033         | 0.057                      | 0.336                      | 0.366                      | 0.349                      | 0.312                       | 0.336                      | 0.482                      | 0.512                      | 0.495                      | 0.458                       | 0.482                      | 0.368                      | 0.398                      | 0.381                      | 0.344                       | 0.368    |        |               |
|           | LTE Band 7        | Right Cheek  | 0.788             | 0.469           | 1.113           | 0.438        | 0.306        | 0.190         | 0.160         | 0.121         | 0.168                      | 1.563                      | 1.447                      | 1.417                      | 1.378                       | 1.425                      | 2.207                      | 2.091                      | 2.061                      | 2.022                       | 2.069                      | 1.532                      | 1.416                      | 1.386                      | 1.347                       | 1.394    | CASE 5 | 0.04          |
|           |                   | Right Tilted | 0.299             | 0.306           | 0.675           | 0.370        | 0.189        | 0.108         | 0.101         | 0.127         | 0.087                      | 0.794                      | 0.713                      | 0.706                      | 0.732                       | 0.692                      | 1.163                      | 1.082                      | 1.075                      | 1.101                       | 1.061                      | 0.858                      | 0.777                      | 0.770                      | 0.796                       | 0.756    |        |               |
|           |                   | Left Cheek   | 0.427             | 0.111           | 0.259           | 0.165        | 0.104        | 0.122         | 0.112         | 0.119         | 0.072                      | 0.642                      | 0.660                      | 0.650                      | 0.657                       | 0.610                      | 0.790                      | 0.808                      | 0.798                      | 0.805                       | 0.758                      | 0.696                      | 0.714                      | 0.704                      | 0.711                       | 0.664    |        |               |
|           |                   | Left Tilted  | 0.306             | 0.120           | 0.266           | 0.152        | 0.057        | 0.087         | 0.070         | 0.033         | 0.057                      | 0.483                      | 0.513                      | 0.496                      | 0.459                       | 0.483                      | 0.629                      | 0.659                      | 0.642                      | 0.605                       | 0.629                      | 0.515                      | 0.545                      | 0.528                      | 0.491                       | 0.515    |        |               |
|           | LTE Band 13       | Right Cheek  | 0.227             | 0.469           | 1.113           | 0.438        | 0.306        | 0.190         | 0.160         | 0.121         | 0.168                      | 1.002                      | 0.886                      | 0.856                      | 0.817                       | 0.864                      | 1.646                      | 1.530                      | 1.500                      | 1.461                       | 1.508                      | 0.971                      | 0.855                      | 0.825                      | 0.786                       | 0.833    | CASE 6 | 0.03          |
|           |                   | Right Tilted | 0.132             | 0.306           | 0.675           | 0.370        | 0.189        | 0.108         | 0.101         | 0.127         | 0.087                      | 0.627                      | 0.546                      | 0.539                      | 0.565                       | 0.525                      | 0.996                      | 0.915                      | 0.908                      | 0.934                       | 0.894                      | 0.691                      | 0.610                      | 0.603                      | 0.629                       | 0.589    |        |               |
|           |                   | Left Cheek   | 0.262             | 0.111           | 0.259           | 0.165        | 0.104        | 0.122         | 0.112         | 0.119         | 0.072                      | 0.477                      | 0.495                      | 0.485                      | 0.492                       | 0.445                      | 0.625                      | 0.643                      | 0.633                      | 0.640                       | 0.593                      | 0.531                      | 0.549                      | 0.539                      | 0.546                       | 0.499    |        |               |
|           |                   | Left Tilted  | 0.136             | 0.120           | 0.266           | 0.152        | 0.057        | 0.087         | 0.070         | 0.033         | 0.057                      | 0.313                      | 0.343                      | 0.326                      | 0.289                       | 0.313                      | 0.459                      | 0.489                      | 0.472                      | 0.435                       | 0.459                      | 0.345                      | 0.375                      | 0.358                      | 0.321                       | 0.345    |        |               |
|           | LTE Band 66       | Right Cheek  | 0.570             | 0.469           | 1.113           | 0.438        | 0.306        | 0.190         | 0.160         | 0.121         | 0.168                      | 1.345                      | 1.229                      | 1.199                      | 1.160                       | 1.207                      | 1.989                      | 1.873                      | 1.843                      | 1.804                       | 1.851                      | 1.314                      | 1.198                      | 1.168                      | 1.129                       | 1.176    | CASE 7 | 0.04          |
|           |                   | Right Tilted | 0.175             | 0.306           | 0.675           | 0.370        | 0.189        | 0.108         | 0.101         | 0.127         | 0.087                      | 0.670                      | 0.589                      | 0.582                      | 0.608                       | 0.568                      | 1.039                      | 0.958                      | 0.951                      | 0.977                       | 0.937                      | 0.734                      | 0.653                      | 0.646                      | 0.672                       | 0.632    |        |               |
|           |                   | Left Cheek   | 0.348             | 0.111           | 0.259           | 0.165        | 0.104        | 0.122         | 0.112         | 0.119         | 0.072                      | 0.563                      | 0.581                      | 0.571                      | 0.578                       | 0.531                      | 0.711                      | 0.729                      | 0.719                      | 0.726                       | 0.679                      | 0.617                      | 0.635                      | 0.625                      | 0.632                       | 0.585    |        |               |
|           |                   | Left Tilted  | 0.217             | 0.120           | 0.266           | 0.152        | 0.057        | 0.087         | 0.070         | 0.033         | 0.057                      | 0.394                      | 0.424                      | 0.407                      | 0.370                       | 0.394                      | 0.540                      | 0.570                      | 0.553                      | 0.516                       | 0.540                      | 0.426                      | 0.456                      | 0.439                      | 0.402                       | 0.426    |        |               |

**15.2 Hotspot Exposure Conditions**

&lt;WWAN Tx On&gt;

| Hotspot        |                   | IHD756XJ1           |                         |                       |                     |                     | IHD756XL1           |                     |                     |                     |                                     | Summation                           |                                     |                                     |                                      |                                     |                                     |                                     |                                     |                                      |                                     |                                     |                                     |                                     |                                      | Case No. | SPLSR   |      |
|----------------|-------------------|---------------------|-------------------------|-----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|----------|---------|------|
| WWAN Band      | Exposure Position | 1                   | 2                       | 3                     | 4                   | 5                   | 7                   | 8                   | 9                   | 10                  | 1+2+5<br>Summed<br>1g SAR<br>(W/kg) | 1+2+7<br>Summed<br>1g SAR<br>(W/kg) | 1+2+8<br>Summed<br>1g SAR<br>(W/kg) | 1+2+9<br>Summed<br>1g SAR<br>(W/kg) | 1+2+10<br>Summed<br>1g SAR<br>(W/kg) | 1+3+5<br>Summed<br>1g SAR<br>(W/kg) | 1+3+7<br>Summed<br>1g SAR<br>(W/kg) | 1+3+8<br>Summed<br>1g SAR<br>(W/kg) | 1+3+9<br>Summed<br>1g SAR<br>(W/kg) | 1+3+10<br>Summed<br>1g SAR<br>(W/kg) | 1+4+5<br>Summed<br>1g SAR<br>(W/kg) | 1+4+7<br>Summed<br>1g SAR<br>(W/kg) | 1+4+8<br>Summed<br>1g SAR<br>(W/kg) | 1+4+9<br>Summed<br>1g SAR<br>(W/kg) | 1+4+10<br>Summed<br>1g SAR<br>(W/kg) |          |         |      |
|                |                   | WWAN                | 2.4GHz<br>WLAN<br>Ant 1 | 5GHz<br>WLAN<br>Ant 1 | Bluetooth<br>Ant 1  | LTE<br>B2<br>(MOD)  | LTE<br>B5<br>(MOD)  | LTE<br>B13(MOD)     | LTE<br>B48(MOD)     | LTE<br>B66(MOD)     |                                     |                                     |                                     |                                     |                                      |                                     |                                     |                                     |                                     |                                      |                                     |                                     |                                     |                                     |                                      |          |         |      |
|                |                   | 1g<br>SAR<br>(W/kg) | 1g<br>SAR<br>(W/kg)     | 1g<br>SAR<br>(W/kg)   | 1g<br>SAR<br>(W/kg) | 1g<br>SAR<br>(W/kg) | 1g<br>SAR<br>(W/kg) | 1g<br>SAR<br>(W/kg) | 1g<br>SAR<br>(W/kg) | 1g<br>SAR<br>(W/kg) |                                     |                                     |                                     |                                     |                                      |                                     |                                     |                                     |                                     |                                      |                                     |                                     |                                     |                                     |                                      |          |         |      |
| CDMA           | CDM<br>BC0        | Front               | 0.564                   | 0.282                 | 0.513               | 0.220               | 0.203               | 0.095               | 0.129               | 0.308               | 0.137                               | 1.049                               | 0.941                               | 0.975                               | 1.154                                | 0.983                               | 1.280                               | 1.172                               | 1.206                               | 1.385                                | 1.214                               | 0.987                               | 0.879                               | 0.913                               | 1.092                                | 0.921    |         |      |
|                |                   | Back                | 0.222                   | 0.047                 | 0.136               | 0.050               | 1.381               | 0.908               | 1.383               | 1.235               | 1.266                               | 1.650                               | 1.177                               | 1.652                               | 1.504                                | 1.535                               | 1.739                               | 1.266                               | 1.741                               | 1.593                                | 1.624                               | 1.653                               | 1.180                               | 1.655                               | 1.507                                | 1.538    | CASE 13 | 0.02 |
|                |                   | Left side           | 0.314                   | 0.384                 | 0.912               | 0.353               | 0.501               | 0.282               | 0.595               | 0.993               | 0.472                               | 1.199                               | 0.980                               | 1.293                               | 1.691                                | 1.170                               | 1.727                               | 1.508                               | 1.821                               | 2.219                                | 1.698                               | 1.168                               | 0.949                               | 1.262                               | 1.660                                | 1.139    | CASE 23 | 0.04 |
|                |                   | Right side          | 0.158                   |                       |                     |                     |                     |                     |                     |                     |                                     | 0.158                               | 0.158                               | 0.158                               | 0.158                                | 0.158                               | 0.158                               | 0.158                               | 0.158                               | 0.158                                | 0.158                               | 0.158                               | 0.158                               | 0.158                               | 0.158                                | 0.158    |         |      |
|                |                   | Top side            |                         | 0.088                 | 0.767               | 0.353               | 0.026               | 0.060               | 0.045               |                     | 0.015                               | 0.114                               | 0.148                               | 0.133                               | 0.088                                | 0.103                               | 0.793                               | 0.827                               | 0.812                               | 0.767                                | 0.782                               | 0.379                               | 0.413                               | 0.398                               | 0.353                                | 0.368    |         |      |
|                |                   | Bottom side         | 0.305                   |                       |                     |                     |                     |                     |                     | 0.410               |                                     | 0.305                               | 0.305                               | 0.305                               | 0.715                                | 0.305                               | 0.305                               | 0.305                               | 0.305                               | 0.715                                | 0.305                               | 0.305                               | 0.305                               | 0.305                               | 0.305                                | 0.715    | 0.305   |      |
|                | CDMA<br>BC1       | Front               | 0.463                   | 0.282                 | 0.513               | 0.220               | 0.203               | 0.095               | 0.129               | 0.308               | 0.137                               | 0.948                               | 0.840                               | 0.874                               | 1.053                                | 0.882                               | 1.179                               | 1.071                               | 1.105                               | 1.284                                | 1.113                               | 0.886                               | 0.778                               | 0.812                               | 0.991                                | 0.820    |         |      |
|                |                   | Back                | 0.166                   | 0.047                 | 0.136               | 0.050               | 1.381               | 0.908               | 1.383               | 1.235               | 1.266                               | 1.594                               | 1.121                               | 1.596                               | 1.448                                | 1.479                               | 1.683                               | 1.210                               | 1.685                               | 1.537                                | 1.568                               | 1.597                               | 1.124                               | 1.599                               | 1.451                                | 1.482    | CASE 14 | 0.02 |
|                |                   | Left side           | 0.017                   | 0.384                 | 0.912               | 0.353               | 0.501               | 0.282               | 0.595               | 0.993               | 0.260                               | 0.902                               | 0.683                               | 0.996                               | 1.394                                | 0.661                               | 1.430                               | 1.211                               | 1.524                               | 1.922                                | 1.189                               | 0.871                               | 0.652                               | 0.965                               | 1.363                                | 0.630    | CASE 24 | 0.04 |
|                |                   | Right side          | 0.082                   |                       |                     |                     |                     |                     |                     |                     |                                     | 0.082                               | 0.082                               | 0.082                               | 0.082                                | 0.082                               | 0.082                               | 0.082                               | 0.082                               | 0.082                                | 0.082                               | 0.082                               | 0.082                               | 0.082                               | 0.082                                | 0.082    |         |      |
|                |                   | Top side            |                         | 0.088                 | 0.767               | 0.353               | 0.026               | 0.060               | 0.045               |                     | 0.015                               | 0.114                               | 0.148                               | 0.133                               | 0.088                                | 0.103                               | 0.793                               | 0.827                               | 0.812                               | 0.767                                | 0.782                               | 0.379                               | 0.413                               | 0.398                               | 0.353                                | 0.368    |         |      |
|                |                   | Bottom side         | 0.929                   |                       |                     |                     |                     |                     |                     | 0.410               |                                     | 0.929                               | 0.929                               | 0.929                               | 1.339                                | 0.929                               | 0.929                               | 0.929                               | 0.929                               | 1.339                                | 0.929                               | 0.929                               | 0.929                               | 0.929                               | 0.929                                | 1.339    | 0.929   |      |
| LTE            | LTE<br>Band 2     | Front               | 0.528                   | 0.282                 | 0.513               | 0.220               | 0.203               | 0.095               | 0.129               | 0.308               | 0.137                               | 1.013                               | 0.905                               | 0.939                               | 1.118                                | 0.947                               | 1.244                               | 1.136                               | 1.170                               | 1.349                                | 1.178                               | 0.951                               | 0.843                               | 0.877                               | 1.056                                | 0.885    |         |      |
|                |                   | Back                | 0.162                   | 0.047                 | 0.136               | 0.050               | 1.381               | 0.908               | 1.383               | 1.235               | 1.266                               | 1.590                               | 1.117                               | 1.592                               | 1.444                                | 1.475                               | 1.679                               | 1.206                               | 1.681                               | 1.533                                | 1.564                               | 1.593                               | 1.120                               | 1.593                               | 1.447                                | 1.478    | CASE 15 | 0.02 |
|                |                   | Left side           | 0.021                   | 0.384                 | 0.912               | 0.353               | 0.501               | 0.282               | 0.595               | 0.993               | 0.260                               | 0.906                               | 0.687                               | 1.000                               | 1.398                                | 0.665                               | 1.434                               | 1.215                               | 1.528                               | 1.926                                | 1.193                               | 0.875                               | 0.656                               | 0.969                               | 1.367                                | 0.634    | CASE 25 | 0.02 |
|                |                   | Right side          | 0.064                   |                       |                     |                     |                     |                     |                     |                     |                                     | 0.064                               | 0.064                               | 0.064                               | 0.064                                | 0.064                               | 0.064                               | 0.064                               | 0.064                               | 0.064                                | 0.064                               | 0.064                               | 0.064                               | 0.064                               | 0.064                                | 0.064    |         |      |
|                |                   | Top side            |                         | 0.088                 | 0.767               | 0.353               | 0.026               | 0.060               | 0.045               |                     | 0.015                               | 0.114                               | 0.148                               | 0.133                               | 0.088                                | 0.103                               | 0.793                               | 0.827                               | 0.812                               | 0.767                                | 0.782                               | 0.379                               | 0.413                               | 0.398                               | 0.353                                | 0.368    |         |      |
|                |                   | Bottom side         | 0.875                   |                       |                     |                     |                     |                     |                     | 0.410               |                                     | 0.875                               | 0.875                               | 0.875                               | 1.285                                | 0.875                               | 0.875                               | 0.875                               | 0.875                               | 1.285                                | 0.875                               | 0.875                               | 0.875                               | 0.875                               | 0.875                                | 1.285    | 0.875   |      |
|                | LTE<br>Band 5     | Front               | 0.905                   | 0.282                 | 0.513               | 0.220               | 0.203               | 0.095               | 0.129               | 0.308               | 0.137                               | 1.390                               | 1.282                               | 1.316                               | 1.495                                | 1.324                               | 1.621                               | 1.513                               | 1.547                               | 1.726                                | 1.555                               | 1.328                               | 1.220                               | 1.254                               | 1.433                                | 1.262    | CASE 8  | 0.02 |
|                |                   | Back                | 0.299                   | 0.047                 | 0.136               | 0.050               | 1.381               | 0.908               | 1.383               | 1.235               | 1.266                               | 1.727                               | 1.254                               | 1.729                               | 1.581                                | 1.612                               | 1.816                               | 1.343                               | 1.818                               | 1.670                                | 1.701                               | 1.730                               | 1.257                               | 1.732                               | 1.584                                | 1.615    | CASE 30 | 0.02 |
|                |                   | Left side           | 0.330                   | 0.384                 | 0.912               | 0.353               | 0.501               | 0.282               | 0.595               | 0.993               | 0.260                               | 1.215                               | 0.996                               | 1.309                               | 1.707                                | 0.974                               | 1.743                               | 1.524                               | 1.837                               | 2.235                                | 1.502                               | 1.184                               | 0.965                               | 1.278                               | 1.676                                | 0.943    | CASE 26 | 0.04 |
|                |                   | Right side          | 0.170                   |                       |                     |                     |                     |                     |                     |                     |                                     | 0.170                               | 0.170                               | 0.170                               | 0.170                                | 0.170                               | 0.170                               | 0.170                               | 0.170                               | 0.170                                | 0.170                               | 0.170                               | 0.170                               | 0.170                               | 0.170                                | 0.170    |         |      |
|                |                   | Top side            |                         | 0.088                 | 0.767               | 0.353               | 0.026               | 0.060               | 0.045               |                     | 0.015                               | 0.114                               | 0.148                               | 0.133                               | 0.088                                | 0.103                               | 0.793                               | 0.827                               | 0.812                               | 0.767                                | 0.782                               | 0.379                               | 0.413                               | 0.398                               | 0.353                                | 0.368    |         |      |
|                |                   | Bottom side         | 0.466                   |                       |                     |                     |                     |                     |                     | 0.410               |                                     | 0.466                               | 0.466                               | 0.466                               | 0.876                                | 0.466                               | 0.466                               | 0.466                               | 0.466                               | 0.876                                | 0.466                               | 0.466                               | 0.466                               | 0.466                               | 0.466                                | 0.876    | 0.466   |      |
|                | LTE<br>Band 7     | Front               | 0.387                   | 0.282                 | 0.513               | 0.220               | 0.203               | 0.095               | 0.129               | 0.308               | 0.137                               | 0.872                               | 0.764                               | 0.798                               | 0.977                                | 0.806                               | 1.103                               | 0.995                               | 1.029                               | 1.208                                | 1.037                               | 0.810                               | 0.702                               | 0.736                               | 0.915                                | 0.744    |         |      |
|                |                   | Back                | 0.143                   | 0.047                 | 0.136               | 0.050               | 1.381               | 0.908               | 1.383               | 1.235               | 1.266                               | 1.571                               | 1.098                               | 1.573                               | 1.425                                | 1.456                               | 1.660                               | 1.187                               | 1.662                               | 1.514                                | 1.545                               | 1.574                               | 1.101                               | 1.576                               | 1.428                                | 1.459    | CASE16  | 0.02 |
|                |                   | Left side           |                         | 0.384                 | 0.912               | 0.353               | 0.501               | 0.282               | 0.595               | 0.993               | 0.260                               | 0.885                               | 0.666                               | 0.979                               | 1.377                                | 0.644                               | 1.413                               | 1.194                               | 1.507                               | 1.905                                | 1.172                               | 0.854                               | 0.635                               | 0.948                               | 1.346                                | 0.613    | CASE 23 | 0.02 |
|                |                   | Right side          | 0.469                   |                       |                     |                     |                     |                     |                     |                     |                                     | 0.469                               | 0.469                               | 0.469                               | 0.469                                | 0.469                               | 0.469                               | 0.469                               | 0.469                               | 0.469                                | 0.469                               | 0.469                               | 0.469                               | 0.469                               | 0.469                                | 0.469    |         |      |
|                |                   | Top side            |                         | 0.088                 | 0.767               | 0.353               | 0.026               | 0.060               | 0.045               |                     | 0.015                               | 0.114                               | 0.148                               | 0.133                               | 0.088                                | 0.103                               | 0.793                               | 0.827                               | 0.812                               | 0.767                                | 0.782                               | 0.379                               | 0.413                               | 0.398                               | 0.353                                | 0.368    |         |      |
|                |                   | Bottom side         | 0.166                   |                       |                     |                     |                     |                     |                     | 0.410               |                                     | 0.166                               | 0.166                               | 0.166                               | 0.576                                | 0.166                               | 0.166                               | 0.166                               | 0.166                               | 0.576                                | 0.166                               | 0.166                               | 0.166                               | 0.166                               | 0.166                                | 0.576    | 0.166   |      |
|                | LTE<br>Band 13    | Front               | 0.670                   | 0.282                 | 0.513               | 0.220               | 0.203               | 0.095               | 0.129               | 0.308               | 0.137                               | 1.155                               | 1.047                               | 1.081                               | 1.260                                | 1.089                               | 1.386                               | 1.278                               | 1.312                               | 1.491                                | 1.320                               | 1.093                               | 0.985                               | 1.019                               | 1.198                                | 1.027    |         |      |
|                |                   | Back                | 0.229                   | 0.047                 | 0.136               | 0.050               | 1.381               | 0.908               | 1.383               | 1.235               | 1.266                               | 1.657                               | 1.184                               | 1.659                               | 1.511                                | 1.542                               | 1.746                               | 1.273                               | 1.748                               | 1.600                                | 1.631                               | 1.660                               | 1.187                               | 1.662                               | 1.514                                | 1.545    | CASE 17 | 0.02 |
|                |                   | Left side           | 0.382                   | 0.384                 | 0.912               | 0.353               | 0.501               | 0.282               | 0.595               | 0.993               | 0.260                               | 1.267                               | 1.048                               | 1.361                               | 1.759                                | 1.026                               | 1.795                               | 1.576                               | 1.889                               | 2.287                                | 1.554                               | 1.236                               | 1.017                               | 1.330                               | 1.728                                | 0.995    | CASE 28 | 0.04 |
|                |                   | Right side          | 0.284                   |                       |                     |                     |                     |                     |                     |                     |                                     | 0.284                               | 0.284                               | 0.284                               | 0.284                                | 0.284                               | 0.284                               | 0.284                               | 0.284                               | 0.284                                | 0.284                               | 0.284                               | 0.284                               | 0.284                               | 0.284                                | 0.284    |         |      |
|                |                   | Top side            |                         | 0.088                 | 0.767               | 0.353               | 0.026               | 0.060               | 0.045               |                     | 0.015                               | 0.114                               | 0.148                               | 0.133                               | 0.088                                | 0.103                               | 0.793                               | 0.827                               | 0.812                               | 0.767                                | 0.782                               | 0.379                               | 0.413                               | 0.398                               | 0.353                                | 0.368    |         |      |
|                |                   | Bottom side         | 0.332                   |                       |                     |                     |                     |                     |                     | 0.410               |                                     | 0.332                               | 0.332                               | 0.332                               | 0.742                                | 0.332                               | 0.332                               | 0.332                               | 0.332                               | 0.742                                | 0.332                               | 0.332                               | 0.332                               | 0.332                               | 0.332                                | 0.742    | 0.332   |      |
| LTE<br>Band 66 | Front             | 0.929               | 0.282                   | 0.513                 | 0.220               | 0.203               | 0.095               | 0.129               | 0.308               | 0.137               | 1.414                               | 1.306                               | 1.340                               | 1.519                               | 1.348                                | 1.645                               | 1.537                               | 1.571                               | 1.750                               | 1.579                                | 1.352                               | 1.244                               | 1.278                               | 1.457                               | 1.286                                | CASE 9   | 0.02    |      |
|                | Back              | 0.247               | 0.047                   | 0.136                 | 0.050               | 1.381               | 0.908               | 1.383               | 1.235               | 1.266               | 1.675                               | 1.202                               | 1.677                               | 1.529                               | 1.560                                | 1.764                               | 1.291                               | 1.766                               | 1.618                               | 1.649                                | 1.678                               | 1.205                               | 1.680                               | 1.532                               | 1.563                                | CASE 18  | 0.02    |      |
|                | Left side         | 0.079               | 0.384                   | 0.912                 | 0.353               | 0.501               | 0.282               | 0.595               | 0.993               | 0.260               | 0.964                               | 0.745                               | 1.058                               | 1.456                               | 0.723                                | 1.492                               | 1.273                               | 1.586                               | 1.984                               | 1.251                                | 0.933                               | 0.714                               | 1.027                               | 1.425                               | 0.692                                | CASE 29  | 0.02    |      |
|                | Right side        | 0.150               |                         |                       |                     |                     |                     |                     |                     |                     | 0.150                               | 0.150                               | 0.150                               | 0.150                               | 0.150                                | 0.150                               | 0.150                               | 0.150                               | 0.150                               | 0.150                                | 0.150                               | 0.150                               | 0.150                               | 0.150                               | 0.150                                |          |         |      |
|                | Top side          |                     | 0.088                   | 0.767                 | 0.353               | 0.026               | 0.060               | 0.045               |                     | 0.015               | 0.114                               | 0.148                               | 0.133                               | 0.088                               | 0.103                                | 0.793                               | 0.827                               | 0.812                               | 0.767                               | 0.782                                | 0.379                               | 0.413                               | 0.398                               | 0.353                               | 0.368                                |          |         |      |
|                | Bottom side       | 1.183               |                         |                       |                     |                     |                     |                     | 0.410               |                     | 1.183                               |                                     |                                     |                                     |                                      |                                     |                                     |                                     |                                     |                                      |                                     |                                     |                                     |                                     |                                      |          |         |      |



**<WWAN Tx Off>**

| WWAN Band |                  | Exposure Position | 1                     | 2                                     | 3                                   | 4                                                | 1+2 Summed<br>1g SAR (W/kg) | 1+3 Summed<br>1g SAR (W/kg) | 1+4 Summed<br>1g SAR (W/kg) | Case No. | SPLSR |
|-----------|------------------|-------------------|-----------------------|---------------------------------------|-------------------------------------|--------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|----------|-------|
|           |                  |                   | WWAN<br>1g SAR (W/kg) | 2.4GHz WLAN<br>Ant 1<br>1g SAR (W/kg) | 5GHz WLAN<br>Ant 1<br>1g SAR (W/kg) | Bluetooth<br>Ant 1<br>Estimated<br>1g SAR (W/kg) |                             |                             |                             |          |       |
| LTE       | LTE Band 2(MOD)  | Front             | 0.203                 | 0.282                                 | 0.513                               | 0.220                                            | 0.485                       | 0.716                       | 0.423                       |          |       |
|           |                  | Back              | 1.381                 | 0.047                                 | 0.136                               | 0.050                                            | 1.428                       | 1.517                       | 1.431                       |          |       |
|           |                  | Left side         | 0.501                 | 0.384                                 | 0.912                               | 0.353                                            | 0.885                       | 1.413                       | 0.854                       |          |       |
|           |                  | Right side        |                       |                                       |                                     |                                                  | 0.000                       | 0.000                       | 0.000                       |          |       |
|           |                  | Top side          | 0.026                 | 0.088                                 | 0.767                               | 0.353                                            | 0.114                       | 0.793                       | 0.379                       |          |       |
|           |                  | Bottom side       |                       |                                       |                                     |                                                  | 0.000                       | 0.000                       | 0.000                       |          |       |
|           | LTE Band 5(MOD)  | Front             | 0.135                 | 0.282                                 | 0.513                               | 0.220                                            | 0.417                       | 0.648                       | 0.355                       |          |       |
|           |                  | Back              | 1.328                 | 0.047                                 | 0.136                               | 0.050                                            | 1.375                       | 1.464                       | 1.378                       |          |       |
|           |                  | Left side         | 0.473                 | 0.384                                 | 0.912                               | 0.353                                            | 0.857                       | 1.385                       | 0.826                       |          |       |
|           |                  | Right side        | 0.152                 |                                       |                                     |                                                  | 0.152                       | 0.152                       | 0.152                       |          |       |
|           |                  | Top side          | 0.060                 | 0.088                                 | 0.767                               | 0.353                                            | 0.148                       | 0.827                       | 0.413                       |          |       |
|           |                  | Bottom side       |                       |                                       |                                     |                                                  | 0.000                       | 0.000                       | 0.000                       |          |       |
|           | LTE Band 13(MOD) | Front             | 0.129                 | 0.282                                 | 0.513                               | 0.220                                            | 0.411                       | 0.642                       | 0.349                       |          |       |
|           |                  | Back              | 1.383                 | 0.047                                 | 0.136                               | 0.050                                            | 1.430                       | 1.519                       | 1.433                       |          |       |
|           |                  | Left side         | 0.595                 | 0.384                                 | 0.912                               | 0.353                                            | 0.979                       | 1.507                       | 0.948                       |          |       |
|           |                  | Right side        |                       |                                       |                                     |                                                  | 0.000                       | 0.000                       | 0.000                       |          |       |
|           |                  | Top side          | 0.045                 | 0.088                                 | 0.767                               | 0.353                                            | 0.133                       | 0.812                       | 0.398                       |          |       |
|           |                  | Bottom side       |                       |                                       |                                     |                                                  | 0.000                       | 0.000                       | 0.000                       |          |       |
|           | LTE Band 48(MOD) | Front             | 0.308                 | 0.282                                 | 0.513                               | 0.220                                            | 0.590                       | 0.821                       | 0.528                       |          |       |
|           |                  | Back              | 1.235                 | 0.047                                 | 0.136                               | 0.050                                            | 1.282                       | 1.371                       | 1.285                       |          |       |
|           |                  | Left side         | 0.993                 | 0.384                                 | 0.912                               | 0.353                                            | 1.377                       | 1.905                       | 1.346                       | CASE 30  | 0.020 |
|           |                  | Right side        |                       |                                       |                                     |                                                  | 0.000                       | 0.000                       | 0.000                       |          |       |
|           |                  | Top side          |                       | 0.088                                 | 0.767                               | 0.353                                            | 0.088                       | 0.767                       | 0.353                       |          |       |
|           |                  | Bottom side       | 0.410                 |                                       |                                     |                                                  | 0.410                       | 0.410                       | 0.410                       |          |       |
|           | LTE Band 66(MOD) | Front             | 0.137                 | 0.282                                 | 0.513                               | 0.220                                            | 0.419                       | 0.650                       | 0.357                       |          |       |
|           |                  | Back              | 1.266                 | 0.047                                 | 0.136                               | 0.050                                            | 1.313                       | 1.402                       | 1.316                       |          |       |
|           |                  | Left side         | 0.472                 | 0.384                                 | 0.912                               | 0.353                                            | 0.856                       | 1.384                       | 0.825                       |          |       |
|           |                  | Right side        |                       |                                       |                                     |                                                  | 0.000                       | 0.000                       | 0.000                       |          |       |
|           |                  | Top side          | 0.150                 | 0.088                                 | 0.767                               | 0.353                                            | 0.238                       | 0.917                       | 0.503                       |          |       |
|           |                  | Bottom side       |                       |                                       |                                     |                                                  | 0.000                       | 0.000                       | 0.000                       |          |       |

**15.3 Body-Worn Accessory Exposure Conditions****<WWAN Tx On>**

| Body-Worn |                   | IHD756XJ1 |                         |                       |                    | IHD756XL1          |                    |                 |                 | Summation       |                                     |                                     |                                     |                                     |                                      |                                     |                                     |                                     |                                     |                                      |                                     |                                     |                                     | Case No.         |                  | SPLSR            |                                     |                                      |
|-----------|-------------------|-----------|-------------------------|-----------------------|--------------------|--------------------|--------------------|-----------------|-----------------|-----------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|------------------|------------------|------------------|-------------------------------------|--------------------------------------|
| WWAN Band | Exposure Position | 1         | 2                       | 3                     | 4                  | 5                  | 7                  | 8               | 9               | 10              | 1+2+5<br>Summed<br>1g SAR<br>(W/kg) | 1+2+7<br>Summed<br>1g SAR<br>(W/kg) | 1+2+8<br>Summed<br>1g SAR<br>(W/kg) | 1+2+9<br>Summed<br>1g SAR<br>(W/kg) | 1+2+10<br>Summed<br>1g SAR<br>(W/kg) | 1+3+5<br>Summed<br>1g SAR<br>(W/kg) | 1+3+7<br>Summed<br>1g SAR<br>(W/kg) | 1+3+8<br>Summed<br>1g SAR<br>(W/kg) | 1+3+9<br>Summed<br>1g SAR<br>(W/kg) | 1+3+10<br>Summed<br>1g SAR<br>(W/kg) | 1+4+5<br>Summed<br>1g SAR<br>(W/kg) | 1+4+7<br>Summed<br>1g SAR<br>(W/kg) | 1+4+8<br>Summed<br>1g SAR<br>(W/kg) |                  |                  |                  | 1+4+9<br>Summed<br>1g SAR<br>(W/kg) | 1+4+10<br>Summed<br>1g SAR<br>(W/kg) |
|           |                   | WWAN      | 2.4GHz<br>WLAN<br>Ant 1 | 5GHz<br>WLAN<br>Ant 1 | Bluetooth<br>Ant 1 | LTE<br>B2<br>(MOD) | LTE<br>B5<br>(MOD) | LTE<br>B13(MOD) | LTE<br>B48(MOD) | LTE<br>B66(MOD) | 1g SAR<br>(W/kg)                    | 1g SAR<br>(W/kg)                    | 1g SAR<br>(W/kg)                    | 1g SAR<br>(W/kg)                    | 1g SAR<br>(W/kg)                     | 1g SAR<br>(W/kg)                    | 1g SAR<br>(W/kg)                    | 1g SAR<br>(W/kg)                    | 1g SAR<br>(W/kg)                    | 1g SAR<br>(W/kg)                     | 1g SAR<br>(W/kg)                    | 1g SAR<br>(W/kg)                    | 1g SAR<br>(W/kg)                    | 1g SAR<br>(W/kg) | 1g SAR<br>(W/kg) | 1g SAR<br>(W/kg) | 1g SAR<br>(W/kg)                    |                                      |
| CDMA      | CDMA<br>BC0       | Front     | 0.690                   | 0.282                 | 0.593              | 0.220              | 0.203              | 0.095           | 0.129           | 0.308           | 0.137                               | 1.175                               | 1.067                               | 1.101                               | 1.280                                | 1.109                               | 1.486                               | 1.378                               | 1.412                               | 1.591                                | 1.420                               | 1.113                               | 1.005                               | 1.039            | 1.218            | 1.047            |                                     |                                      |
|           |                   | Back      | 0.282                   | 0.047                 | 0.136              | 0.050              | 1.381              | 0.908           | 1.383           | 1.235           | 1.266                               | 1.710                               | 1.237                               | 1.712                               | 1.564                                | 1.595                               | 1.799                               | 1.326                               | 1.801                               | 1.653                                | 1.684                               | 1.713                               | 1.240                               | 1.715            | 1.567            | 1.598            | CASE 19                             | 0.02                                 |
|           | CDMA<br>BC1       | Front     | 0.430                   | 0.282                 | 0.593              | 0.220              | 0.203              | 0.095           | 0.129           | 0.308           | 0.137                               | 0.915                               | 0.807                               | 0.841                               | 1.020                                | 0.849                               | 1.226                               | 1.118                               | 1.152                               | 1.331                                | 1.160                               | 0.853                               | 0.745                               | 0.779            | 0.958            | 0.787            | CASE 10                             | 0.01                                 |
|           |                   | Back      | 0.249                   | 0.047                 | 0.136              | 0.050              | 1.381              | 0.908           | 1.383           | 1.235           | 1.266                               | 1.677                               | 1.204                               | 1.679                               | 1.531                                | 1.562                               | 1.766                               | 1.293                               | 1.768                               | 1.620                                | 1.651                               | 1.680                               | 1.207                               | 1.682            | 1.534            | 1.565            | CASE 20                             | 0.02                                 |
| LTE       | LTE<br>Band 2     | Front     | 0.910                   | 0.282                 | 0.593              | 0.220              | 0.203              | 0.095           | 0.129           | 0.308           | 0.137                               | 1.395                               | 1.287                               | 1.321                               | 1.500                                | 1.329                               | 1.706                               | 1.598                               | 1.632                               | 1.811                                | 1.640                               | 1.333                               | 1.225                               | 1.259            | 1.438            | 1.267            | CASE 11                             | 0.02                                 |
|           |                   | Back      | 0.239                   | 0.047                 | 0.136              | 0.050              | 1.381              | 0.908           | 1.383           | 1.235           | 1.266                               | 1.667                               | 1.194                               | 1.669                               | 1.521                                | 1.552                               | 1.756                               | 1.283                               | 1.758                               | 1.610                                | 1.641                               | 1.670                               | 1.197                               | 1.672            | 1.524            | 1.555            | CASE 21                             | 0.02                                 |
|           | LTE<br>Band 66    | Front     | 1.144                   | 0.282                 | 0.593              | 0.220              | 0.203              | 0.095           | 0.129           | 0.308           | 0.137                               | 1.629                               | 1.521                               | 1.555                               | 1.734                                | 1.563                               | 1.940                               | 1.832                               | 1.866                               | 2.045                                | 1.874                               | 1.567                               | 1.459                               | 1.493            | 1.672            | 1.501            | CASE 12                             | 0.02                                 |
|           |                   | Back      | 0.315                   | 0.047                 | 0.136              | 0.050              | 1.381              | 0.908           | 1.383           | 1.235           | 1.266                               | 1.743                               | 1.270                               | 1.745                               | 1.597                                | 1.628                               | 1.832                               | 1.359                               | 1.834                               | 1.686                                | 1.717                               | 1.746                               | 1.273                               | 1.748            | 1.600            | 1.631            | CASE 22                             | 0.02                                 |

**<WWAN Tx Off>**

| WWAN Band |                  | Exposure Position | 1                | 2                    | 3                  | 4                          | 1+2<br>Summed<br>1g SAR (W/kg) | 1+3<br>Summed<br>1g SAR (W/kg) | 1+4<br>Summed<br>1g SAR (W/kg) |
|-----------|------------------|-------------------|------------------|----------------------|--------------------|----------------------------|--------------------------------|--------------------------------|--------------------------------|
|           |                  |                   | WWAN             | 2.4GHz WLAN<br>Ant 1 | 5GHz WLAN<br>Ant 1 | Bluetooth<br>Ant 1         |                                |                                |                                |
|           |                  |                   | 1g SAR<br>(W/kg) | 1g SAR<br>(W/kg)     | 1g SAR<br>(W/kg)   | Estimated<br>1g SAR (W/kg) |                                |                                |                                |
| LTE       | LTE Band 2(MOD)  | Front             | 0.203            | 0.282                | 0.513              | 0.220                      | 0.485                          | 0.716                          | 0.423                          |
|           |                  | Back              | 1.381            | 0.047                | 0.136              | 0.050                      | 1.428                          | 1.517                          | 1.431                          |
|           | LTE Band 5(MOD)  | Front             | 0.135            | 0.282                | 0.513              | 0.220                      | 0.417                          | 0.648                          | 0.355                          |
|           |                  | Back              | 1.328            | 0.047                | 0.136              | 0.050                      | 1.375                          | 1.464                          | 1.378                          |
|           | LTE Band 13(MOD) | Front             | 0.129            | 0.282                | 0.513              | 0.220                      | 0.411                          | 0.642                          | 0.349                          |
|           |                  | Back              | 1.383            | 0.047                | 0.136              | 0.050                      | 1.430                          | 1.519                          | 1.433                          |
|           | LTE Band 48(MOD) | Front             | 0.308            | 0.282                | 0.513              | 0.220                      | 0.590                          | 0.821                          | 0.528                          |
|           |                  | Back              | 1.235            | 0.047                | 0.136              | 0.050                      | 1.282                          | 1.371                          | 1.285                          |
|           | LTE Band 66(MOD) | Front             | 0.137            | 0.282                | 0.513              | 0.220                      | 0.419                          | 0.650                          | 0.357                          |
|           |                  | Back              | 1.266            | 0.047                | 0.136              | 0.050                      | 1.313                          | 1.402                          | 1.316                          |



## 15.4 Product Specific Exposure Conditions

### <WWAN Tx On>

| WWAN Band |                 | Exposure Position | 1                 | 2                  | 3                 | 6                 | 7                 | 8                 | 1+2+3<br>Summed<br>10g SAR<br>(W/kg) | 1+2+6<br>Summed<br>10g SAR<br>(W/kg) | 1+2+7<br>Summed<br>10g SAR<br>(W/kg) | 1+2+8<br>Summed<br>10g SAR<br>(W/kg) |
|-----------|-----------------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|-------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
|           |                 |                   | WWAN              | 5GHz WLAN<br>Ant 1 | LTE B2 (MOD)      | LTE B13(MOD)      | LTE B48(MOD)      | LTE B66(MOD)      |                                      |                                      |                                      |                                      |
|           |                 |                   | 10g SAR<br>(W/kg) | 10g SAR<br>(W/kg)  | 10g SAR<br>(W/kg) | 10g SAR<br>(W/kg) | 10g SAR<br>(W/kg) | 10g SAR<br>(W/kg) |                                      |                                      |                                      |                                      |
| CDMA      | CDMA2000<br>BC0 | Front             | 2.819             | 1.090              |                   |                   |                   |                   | 3.909                                | 3.909                                | 3.909                                | 3.909                                |
|           |                 | Back              | 0.957             | 0.515              | 0.400             | 0.928             | 1.620             | 0.505             | 1.872                                | 2.400                                | 3.092                                | 1.977                                |
|           | CDMA2000<br>BC1 | Front             | 2.210             | 1.090              |                   |                   |                   |                   | 3.300                                | 3.300                                | 3.300                                | 3.300                                |
|           |                 | Back              | 1.192             | 0.515              | 0.400             | 0.928             | 1.620             | 0.505             | 2.107                                | 2.635                                | 3.327                                | 2.212                                |
|           |                 | Bottom side       | 1.430             |                    |                   |                   |                   |                   | 1.430                                | 1.430                                | 1.430                                | 1.430                                |
| LTE       | LTE Band 2      | Front             | 2.887             | 1.090              |                   |                   |                   |                   | 3.977                                | 3.977                                | 3.977                                | 3.977                                |
|           |                 | Back              | 1.175             | 0.515              | 0.400             | 0.928             | 1.620             | 0.505             | 2.090                                | 2.618                                | 3.310                                | 2.195                                |
|           |                 | Bottom side       | 2.550             |                    |                   |                   |                   |                   | 2.550                                | 2.550                                | 2.550                                | 2.550                                |
|           | LTE Band 5      | Front             | 2.153             | 1.090              |                   |                   |                   |                   | 3.243                                | 3.243                                | 3.243                                | 3.243                                |
|           |                 | Back              | 0.827             | 0.515              | 0.400             | 0.928             | 1.620             | 0.505             | 1.742                                | 2.270                                | 2.962                                | 1.847                                |
|           | LTE Band 7      | Front             | 2.202             | 1.090              |                   |                   |                   |                   | 3.292                                | 3.292                                | 3.292                                | 3.292                                |
|           |                 | Back              | 0.528             | 0.515              | 0.400             | 0.928             | 1.620             | 0.505             | 1.443                                | 1.971                                | 2.663                                | 1.548                                |
|           |                 | Right side        | 2.424             |                    |                   |                   |                   |                   | 2.424                                | 2.424                                | 2.424                                | 2.424                                |
|           | LTE Band 13     | Back              | 0.710             |                    | 0.400             | 0.928             | 1.620             | 0.505             | 1.110                                | 1.638                                | 2.330                                | 1.215                                |
|           | LTE Band 66     | Front             | 2.873             | 1.090              |                   |                   |                   |                   | 3.963                                | 3.963                                | 3.963                                | 3.963                                |
|           |                 | Back              | 1.030             | 0.515              | 0.400             | 0.928             | 1.620             | 0.505             | 1.945                                | 2.473                                | 3.165                                | 2.050                                |
|           |                 | Bottom side       | 2.145             |                    |                   |                   |                   |                   | 2.145                                | 2.145                                | 2.145                                | 2.145                                |
|           | LTE Band 48     | Back              |                   | 0.515              | 0.400             | 0.928             | 1.620             | 0.505             | 0.915                                | 1.443                                | 2.135                                | 1.020                                |

### <WWAN Tx Off>

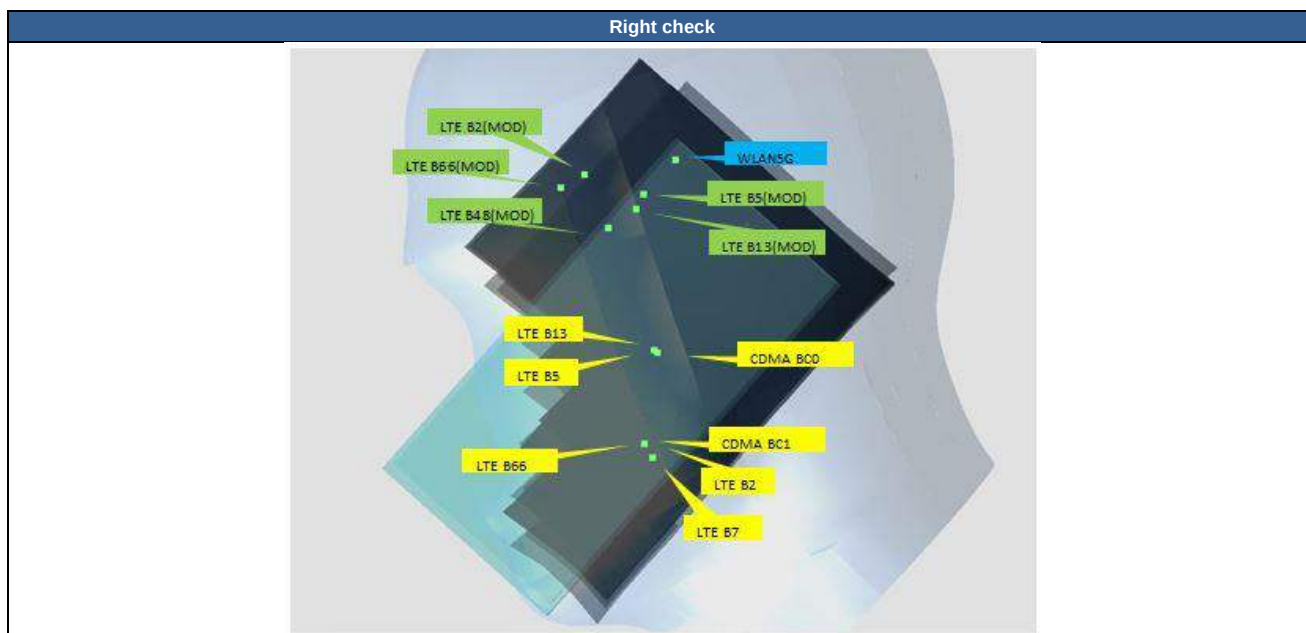
| WWAN Band |                  | Exposure Position | 1                 | 2                  | 1+2<br>Summed<br>10g SAR (W/kg) |
|-----------|------------------|-------------------|-------------------|--------------------|---------------------------------|
|           |                  |                   | WWAN              | 5GHz WLAN<br>Ant 1 |                                 |
|           |                  |                   | 10g SAR<br>(W/kg) | 10g SAR<br>(W/kg)  |                                 |
| LTE       | LTE Band 2(MOD)  | Front             |                   | 1.090              | 1.090                           |
|           |                  | Back              | 0.400             | 0.515              | 0.915                           |
|           |                  | Left side         |                   | 1.501              | 1.501                           |
|           |                  | Top side          |                   | 0.609              | 0.609                           |
|           | LTE Band 5 (MOD) | Front             |                   | 1.090              | 1.090                           |
|           |                  | Back              | 0.778             | 0.515              | 1.293                           |
|           |                  | Left side         |                   | 1.501              | 1.501                           |
|           |                  | Top side          |                   | 0.609              | 0.609                           |
|           | LTE Band 13(MOD) | Front             |                   | 1.090              | 1.090                           |
|           |                  | Back              | 0.928             | 0.515              | 1.443                           |
|           |                  | Left side         |                   | 1.501              | 1.501                           |
|           |                  | Top side          |                   | 0.609              | 0.609                           |
|           | LTE Band 66(MOD) | Front             |                   | 1.090              | 1.090                           |
|           |                  | Back              | 0.505             | 0.515              | 1.020                           |
|           |                  | Left side         |                   | 1.501              | 1.501                           |
|           |                  | Top side          |                   | 0.609              | 0.609                           |
|           | LTE Band 48(MOD) | Front             |                   | 1.090              | 1.090                           |
|           |                  | Back              | 1.620             | 0.515              | 2.135                           |
|           |                  | Left side         |                   | 1.501              | 1.501                           |
|           |                  | Top side          |                   | 0.609              | 0.609                           |

## 15.5 SPLSR Evaluation and Analysis

### General Note:

1. Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneously transmitting antenna. When the sum of 1-g or 10-g SAR of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit, SAR test exclusion applies to that simultaneous transmission configuration. Therefore, the adjacent transmit antennas will be summed first, and then the SPLSR calculation will be evaluated with the farther transmitted antennas.
2.  $SPLSR = (SAR_1 + SAR_2)^{1.5} / (\text{min. separation distance, mm})$ . If  $SPLSR \leq 0.04$ , simultaneously transmission SAR measurement is not necessary
3. The detail hotspot point for each transmitter in each exposure condition are showing as below figure and the minimum 3D distance for each sum combination is used for SPLSR analysis.

### <Each transmitter hot point and SPLSR analysis for Right Check exposure position>



|        | Band                   | Position    | SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|--------|------------------------|-------------|------------|----------|------------------------|--------|-------|------------------|-------------------|---------------|------------------|
|        |                        |             |            |          | X                      | Y      | Z     |                  |                   |               |                  |
| Case 1 | LTE B5 (MOD)+WLAN5GHz  | Right Cheek | 1.303      | 0        | 33.08                  | -22.34 | -3.17 | 55.2             | 1.66              | 0.04          | Not required     |
|        | CDMA BC0               |             | 0.354      | 0        | 43.19                  | 31.9   | -2.97 |                  |                   |               |                  |
|        | LTE B2 (MOD)+WLAN5GHz  | Right Cheek | 1.419      | 0        | 54.2                   | -32.86 | 0.89  | 65.8             | 1.77              | 0.04          | Not required     |
|        | CDMA BC0               |             | 0.354      | 0        | 43.19                  | 31.9   | -2.97 |                  |                   |               |                  |
|        | LTE B13 (MOD)+WLAN5GHz | Right Cheek | 1.273      | 0        | 34.22                  | -24.35 | -4.51 | 57.0             | 1.63              | 0.04          | Not required     |
|        | CDMA BC0               |             | 0.354      | 0        | 43.19                  | 31.9   | -2.97 |                  |                   |               |                  |
|        | LTE B66 (MOD)+WLAN5GHz | Right Cheek | 1.281      | 0        | 52.89                  | -35.26 | 1.66  | 68.0             | 1.64              | 0.03          | Not required     |
|        | CDMA BC0               |             | 0.354      | 0        | 43.19                  | 31.9   | -2.97 |                  |                   |               |                  |

|        | Band                  | Position    | SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|--------|-----------------------|-------------|------------|----------|------------------------|--------|-------|------------------|-------------------|---------------|------------------|
|        |                       |             |            |          | X                      | Y      | Z     |                  |                   |               |                  |
| Case 2 | LTE B2 (MOD)+WLAN5GHz | Right Cheek | 1.419      | 0        | 54.2                   | -32.86 | 0.89  | 95.8             | 1.71              | 0.02          | Not required     |
|        | CDMA BC1              |             | 0.289      | 0        | 36.13                  | 61.23  | -1.69 |                  |                   |               |                  |

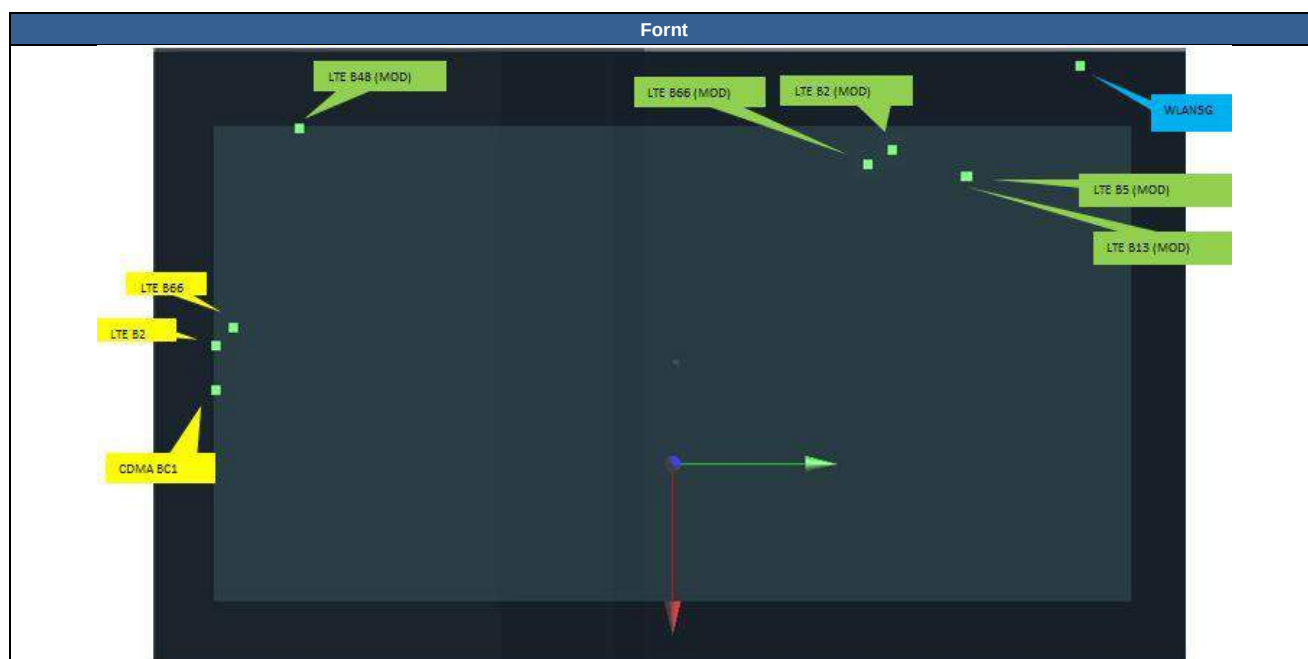
| Case 3 | Band                  | Position    | SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|--------|-----------------------|-------------|------------|----------|------------------------|--------|-------|------------------|-------------------|---------------|------------------|
|        |                       |             |            |          | X                      | Y      | Z     |                  |                   |               |                  |
|        | LTE B5 (MOD)+WLAN5GHz | Right Cheek | 1.303      | 0        | 33.08                  | -22.34 | -3.17 | 84.7             | 1.62              | 0.02          | Not required     |
|        | LTE B2                |             | 0.316      | 0        | 37.73                  | 62.25  | -1.81 |                  |                   |               |                  |
|        | LTE B2 (MOD)+WLAN5GHz | Right Cheek | 1.419      | 0        | 54.2                   | -32.86 | 0.89  | 96.6             | 1.74              | 0.02          | Not required     |
|        | LTE B2                |             | 0.316      | 0        | 37.73                  | 62.25  | -1.81 |                  |                   |               |                  |

| Case 4 | Band                  | Position    | SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|--------|-----------------------|-------------|------------|----------|------------------------|--------|-------|------------------|-------------------|---------------|------------------|
|        |                       |             |            |          | X                      | Y      | Z     |                  |                   |               |                  |
|        | LTE B2 (MOD)+WLAN5GHz | Right Cheek | 1.419      | 0        | 54.2                   | -32.86 | 0.89  | 66.4             | 1.68              | 0.03          | Not required     |
|        | LTE B5                |             | 0.263      | 0        | 44.58                  | 32.7   | -2.93 |                  |                   |               |                  |

| Case 5 | Band                   | Position    | SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|--------|------------------------|-------------|------------|----------|------------------------|--------|-------|------------------|-------------------|---------------|------------------|
|        |                        |             |            |          | X                      | Y      | Z     |                  |                   |               |                  |
|        | LTE B48 (MOD)+WLAN5GHz | Right Cheek | 1.234      | 0        | 45.86                  | 0.65   | -4.27 | 68.9             | 2.02              | 0.04          | Not required     |
|        | LTE B7                 |             | 0.788      | 0        | 54.55                  | 68.76  | 0.9   |                  |                   |               |                  |
|        | LTE B5 (MOD)+WLAN5GHz  | Right Cheek | 1.303      | 0        | 33.08                  | -22.34 | -3.17 | 93.7             | 2.09              | 0.03          | Not required     |
|        | LTE B7                 |             | 0.788      | 0        | 54.55                  | 68.76  | 0.9   |                  |                   |               |                  |
|        | LTE B2 (MOD)+WLAN5GHz  | Right Cheek | 1.419      | 0        | 54.2                   | -32.86 | 0.89  | 101.6            | 2.21              | 0.03          | Not required     |
|        | LTE B7                 |             | 0.788      | 0        | 54.55                  | 68.76  | 0.9   |                  |                   |               |                  |
|        | LTE B13 (MOD)+WLAN5GHz | Right Cheek | 1.273      | 0        | 34.22                  | -24.35 | -4.51 | 95.5             | 2.06              | 0.03          | Not required     |
|        | LTE B7                 |             | 0.788      | 0        | 54.55                  | 68.76  | 0.9   |                  |                   |               |                  |
|        | LTE B66 (MOD)+WLAN5GHz | Right Cheek | 1.281      | 0        | 52.89                  | -35.26 | 1.66  | 104.0            | 2.07              | 0.03          | Not required     |
|        | LTE B7                 |             | 0.788      | 0        | 54.55                  | 68.76  | 0.9   |                  |                   |               |                  |

| Case 6 | Band                  | Position    | SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|--------|-----------------------|-------------|------------|----------|------------------------|--------|-------|------------------|-------------------|---------------|------------------|
|        |                       |             |            |          | X                      | Y      | Z     |                  |                   |               |                  |
|        | LTE B2 (MOD)+WLAN5GHz | Right Cheek | 1.419      | 0        | 54.2                   | -32.86 | 0.89  | 67.8             | 1.65              | 0.03          | Not required     |
|        | LTE B13               |             | 0.227      | 0        | 43.85                  | 33.99  | -2.96 |                  |                   |               |                  |

| Case 7 | Band                   | Position    | SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|--------|------------------------|-------------|------------|----------|------------------------|--------|-------|------------------|-------------------|---------------|------------------|
|        |                        |             |            |          | X                      | Y      | Z     |                  |                   |               |                  |
|        | LTE B48 (MOD)+WLAN5GHz | Right Cheek | 1.234      | 0        | 45.86                  | 0.65   | -4.27 | 68.1             | 1.80              | 0.04          | Not required     |
|        | LTE B66                |             | 0.57       | 0        | 39.2                   | 68.33  | -0.83 |                  |                   |               |                  |
|        | LTE B5 (MOD)+WLAN5GHz  | Right Cheek | 1.303      | 0        | 33.08                  | -22.34 | -3.17 | 90.9             | 1.87              | 0.03          | Not required     |
|        | LTE B66                |             | 0.57       | 0        | 39.2                   | 68.33  | -0.83 |                  |                   |               |                  |
|        | LTE B2 (MOD)+WLAN5GHz  | Right Cheek | 1.419      | 0        | 54.2                   | -32.86 | 0.89  | 102.3            | 1.99              | 0.03          | Not required     |
|        | LTE B66                |             | 0.57       | 0        | 39.2                   | 68.33  | -0.83 |                  |                   |               |                  |
|        | LTE B13 (MOD)+WLAN5GHz | Right Cheek | 1.273      | 0        | 34.22                  | -24.35 | -4.51 | 92.9             | 1.84              | 0.03          | Not required     |
|        | LTE B66                |             | 0.57       | 0        | 39.2                   | 68.33  | -0.83 |                  |                   |               |                  |
|        | LTE B66 (MOD)+WLAN5GHz | Right Cheek | 1.281      | 0        | 52.89                  | -35.26 | 1.66  | 104.5            | 1.85              | 0.02          | Not required     |
|        | LTE B66                |             | 0.57       | 0        | 39.2                   | 68.33  | -0.83 |                  |                   |               |                  |

**<Each transmitter hot point and SPLSR analysis for Front exposure position>**


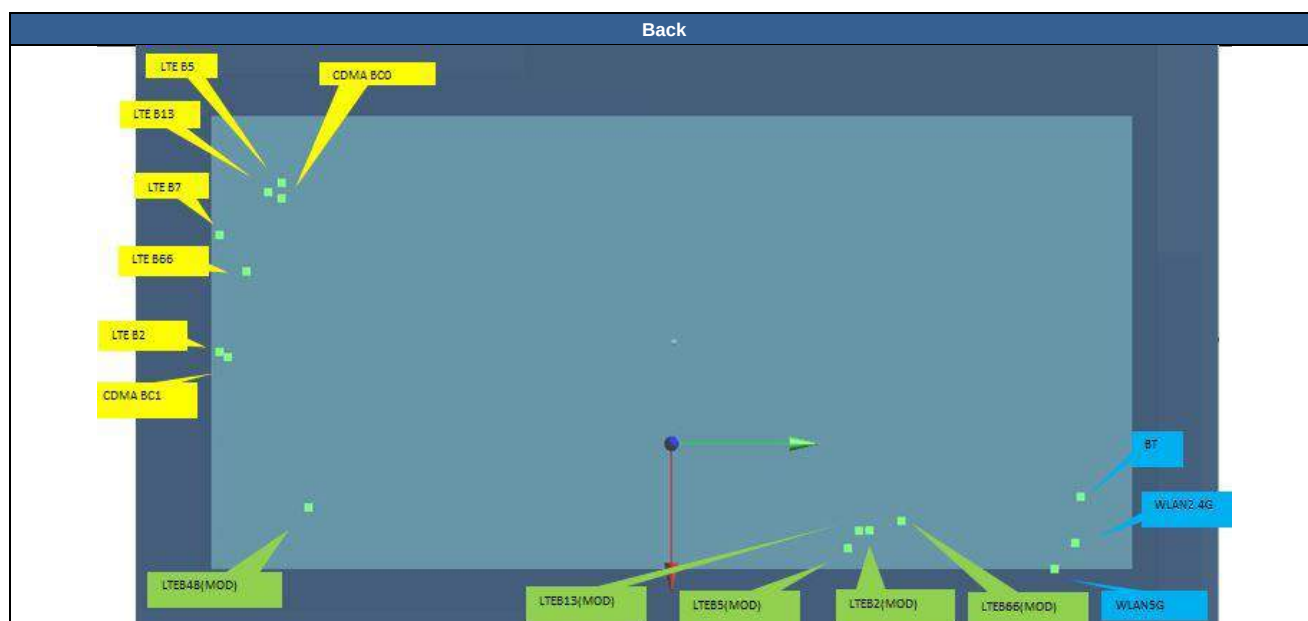
| Case 8 | Band                 | Position | SAR (W/kg) | Gap (mm) | SAR peak location (mm) |       |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|--------|----------------------|----------|------------|----------|------------------------|-------|-------|------------------|-------------------|---------------|------------------|
|        |                      |          |            |          | X                      | Y     | Z     |                  |                   |               |                  |
|        | LTE B2(MOD)+WLAN5G   | Front    | 0.796      | 5mm      | -29.85                 | 38.85 | -1.88 | 123.9            | 1.70              | 0.02          | Not required     |
|        | LTE B5               |          | 0.905      | 5mm      | 5.6                    | -79.9 | -1.26 |                  |                   |               |                  |
|        | LTE B48(MOD)+LTE B66 | Front    | 1.237      | 5mm      | -39.55                 | -65   | -2.16 | 137.4            | 1.75              | 0.02          | Not required     |
|        | WLAN5G               |          | 0.513      | 5mm      | -52.4                  | 71.8  | -0.98 |                  |                   |               |                  |

| Case 9 | Band                 | Position | SAR (W/kg) | Gap (mm) | SAR peak location (mm) |       |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|--------|----------------------|----------|------------|----------|------------------------|-------|-------|------------------|-------------------|---------------|------------------|
|        |                      |          |            |          | X                      | Y     | Z     |                  |                   |               |                  |
|        | LTE B2(MOD)+WLAN5G   | Front    | 0.796      | 5mm      | -29.85                 | 38.85 | -1.88 | 116.9            | 1.73              | 0.02          | Not required     |
|        | LTE B66              |          | 0.929      | 5mm      | -2.8                   | -74.9 | -1.18 |                  |                   |               |                  |
|        | LTE B48(MOD)+LTE B66 | Front    | 1.237      | 5mm      | -39.55                 | -65   | -2.16 | 137.4            | 1.75              | 0.02          | Not required     |
|        | WLAN5G               |          | 0.513      | 5mm      | -52.4                  | 71.8  | -0.98 |                  |                   |               |                  |

| Case 10 | Band                | Position | SAR (W/kg) | Gap (mm) | SAR peak location (mm) |       |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|---------|---------------------|----------|------------|----------|------------------------|-------|-------|------------------|-------------------|---------------|------------------|
|         |                     |          |            |          | X                      | Y     | Z     |                  |                   |               |                  |
|         | LTE B2(MOD)+WLAN5G  | Front    | 0.796      | 5mm      | -29.85                 | 38.85 | -1.88 | 124.7            | 1.23              | 0.01          | Not required     |
|         | BC1                 |          | 0.43       | 5mm      | 9.3                    | -79.5 | -1.05 |                  |                   |               |                  |
|         | LTE B5(MOD)+WLAN5G  | Front    | 0.688      | 5mm      | -29.85                 | 51.5  | -2.36 | 136.7            | 1.12              | 0.01          | Not required     |
|         | BC1                 |          | 0.43       | 5mm      | 9.3                    | -79.5 | -1.05 |                  |                   |               |                  |
|         | LTE B13(MOD)+WLAN5G | Front    | 0.722      | 5mm      | -31.46                 | 51    | -2.45 | 136.7            | 1.15              | 0.01          | Not required     |
|         | BC1                 |          | 0.43       | 5mm      | 9.3                    | -79.5 | -1.05 |                  |                   |               |                  |
|         | LTE B66(MOD)+WLAN5G | Front    | 0.73       | 5mm      | -29.95                 | 29.98 | -2.01 | 116.3            | 1.16              | 0.01          | Not required     |
|         | BC1                 |          | 0.43       | 5mm      | 9.3                    | -79.5 | -1.05 |                  |                   |               |                  |
|         | LTE B48(MOD)+BC1    | Front    | 0.738      | 5mm      | -39.55                 | -65   | -2.16 | 137.4            | 1.25              | 0.01          | Not required     |
|         | WLAN5G              |          | 0.513      | 5mm      | -52.4                  | 71.8  | -0.98 |                  |                   |               |                  |

|         | Band                | Position | SAR<br>(W/kg) | Gap<br>(mm) | SAR peak location (mm) |       |       | 3D<br>distance<br>(mm) | Summed<br>SAR<br>(W/kg) | SPLSR<br>Results | Simultaneous<br>SAR |
|---------|---------------------|----------|---------------|-------------|------------------------|-------|-------|------------------------|-------------------------|------------------|---------------------|
|         |                     |          |               |             | X                      | Y     | Z     |                        |                         |                  |                     |
| Case 11 | LTE B2(MOD)+WLAN5G  | Front    | 0.796         | 5mm         | -29.85                 | 38.85 | -1.88 | 123.7                  | 1.71                    | 0.02             | Not required        |
|         | LTE B2              |          | 0.91          | 5mm         | 0.2                    | -81.1 | -1.02 |                        |                         |                  |                     |
|         | LTE B5(MOD)+WLAN5G  | Front    | 0.688         | 5mm         | -29.85                 | 51.5  | -2.36 | 136.0                  | 1.60                    | 0.01             | Not required        |
|         | LTE B2              |          | 0.91          | 5mm         | 0.2                    | -81.1 | -1.02 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN5G | Front    | 0.722         | 5mm         | -31.46                 | 51    | -2.45 | 135.8                  | 1.63                    | 0.02             | Not required        |
|         | LTE B2              |          | 0.91          | 5mm         | 0.2                    | -81.1 | -1.02 |                        |                         |                  |                     |
|         | LTE B66(MOD)+WLAN5G | Front    | 0.73          | 5mm         | -29.95                 | 29.98 | -2.01 | 115.1                  | 1.64                    | 0.02             | Not required        |
|         | LTE B2              |          | 0.91          | 5mm         | 0.2                    | -81.1 | -1.02 |                        |                         |                  |                     |
|         | LTE B48(MOD)+LTE B2 | Front    | 1.218         | 5mm         | -39.55                 | -65   | -2.16 | 137.4                  | 1.73                    | 0.02             | Not required        |
|         | WLAN5G              |          | 0.513         | 5mm         | -52.4                  | 71.8  | -0.98 |                        |                         |                  |                     |

|         | Band                  | Position | SAR<br>(W/kg) | Gap<br>(mm) | SAR peak location (mm) |       |       | 3D<br>distance<br>(mm) | Summed<br>SAR<br>(W/kg) | SPLSR<br>Results | Simultaneous<br>SAR |
|---------|-----------------------|----------|---------------|-------------|------------------------|-------|-------|------------------------|-------------------------|------------------|---------------------|
|         |                       |          |               |             | X                      | Y     | Z     |                        |                         |                  |                     |
| Case 12 | LTE B2(MOD)+WLAN5G    | Front    | 0.796         | 5mm         | -29.85                 | 38.85 | -1.88 | 116.9                  | 1.94                    | 0.02             | Not required        |
|         | LTE B66               |          | 1.144         | 5mm         | -2.8                   | -74.9 | -1.18 |                        |                         |                  |                     |
|         | LTE B5(MOD)+WLAN5G    | Front    | 0.688         | 5mm         | -29.85                 | 51.5  | -2.36 | 129.3                  | 1.83                    | 0.02             | Not required        |
|         | LTE B66               |          | 1.144         | 5mm         | -2.8                   | -74.9 | -1.18 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN5G   | Front    | 0.722         | 5mm         | -31.46                 | 51    | -2.45 | 129.1                  | 1.87                    | 0.02             | Not required        |
|         | LTE B66               |          | 1.144         | 5mm         | -2.8                   | -74.9 | -1.18 |                        |                         |                  |                     |
|         | LTE B66(MOD)+WLAN5G   | Front    | 0.73          | 5mm         | -29.95                 | 29.98 | -2.01 | 108.3                  | 1.87                    | 0.02             | Not required        |
|         | LTE B66               |          | 1.144         | 5mm         | -2.8                   | -74.9 | -1.18 |                        |                         |                  |                     |
|         | LTE B48(MOD)+LTE B2   | Front    | 1.218         | 5mm         | -39.55                 | -65   | -2.16 | 137.4                  | 1.73                    | 0.02             | Not required        |
|         | WLAN5G                |          | 0.513         | 5mm         | -52.4                  | 71.8  | -0.98 |                        |                         |                  |                     |
|         | LTE B2(MOD)+WLAN2.4G  | Front    | 0.485         | 5mm         | -29.85                 | 38.85 | -1.88 | 116.9                  | 1.63                    | 0.02             | Not required        |
|         | LTE B66               |          | 1.144         | 5mm         | -2.8                   | -74.9 | -1.18 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN2.4G | Front    | 0.411         | 5mm         | -31.46                 | 51    | -2.45 | 129.1                  | 1.56                    | 0.02             | Not required        |
|         | LTE B66               |          | 1.144         | 5mm         | -2.8                   | -74.9 | -1.18 |                        |                         |                  |                     |

**<Each transmitter hot point and SPLSR analysis for Back exposure position>**


|         | Band                  | Position | SAR (W/kg) | Gap (mm) | SAR peak location (mm) |       |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|---------|-----------------------|----------|------------|----------|------------------------|-------|-------|------------------|-------------------|---------------|------------------|
|         |                       |          |            |          | X                      | Y     | Z     |                  |                   |               |                  |
| Case 13 | LTE B2(MOD)+WLAN2.4G  | Back     | 1.428      | 5mm      | 30.05                  | 39    | -1.98 | 124.2            | 1.65              | 0.02          | Not required     |
|         | CDMA BC0              |          | 0.222      | 5mm      | -19.55                 | -74.9 | -2.55 |                  |                   |               |                  |
|         | LTE B13(MOD)+WLAN2.4G | Back     | 1.43       | 5mm      | 30.23                  | 33.78 | -2.37 | 119.5            | 1.65              | 0.02          | Not required     |
|         | CDMA BC0              |          | 0.222      | 5mm      | -19.55                 | -74.9 | -2.55 |                  |                   |               |                  |
|         | LTE B2(MOD)+WLAN5G    | Back     | 1.517      | 5mm      | 30.05                  | 39    | -1.98 | 124.2            | 1.74              | 0.02          | Not required     |
|         | CDMA BC0              |          | 0.222      | 5mm      | -19.55                 | -74.9 | -2.55 |                  |                   |               |                  |
|         | LTE B66(MOD)+WLAN5G   | Back     | 1.402      | 5mm      | 29.56                  | 36.29 | -2.21 | 121.6            | 1.62              | 0.02          | Not required     |
|         | CDMA BC0              |          | 0.222      | 5mm      | -19.55                 | -74.9 | -2.55 |                  |                   |               |                  |
|         | LTE B2(MOD)+BT        | Back     | 1.431      | 5mm      | 30.05                  | 39    | -1.98 | 124.2            | 1.65              | 0.02          | Not required     |
|         | CDMA BC0              |          | 0.222      | 5mm      | -19.55                 | -74.9 | -2.55 |                  |                   |               |                  |
|         | LTE B13(MOD)+WLAN5G   | Back     | 1.519      | 5mm      | 30.23                  | 33.78 | -2.37 | 119.5            | 1.74              | 0.02          | Not required     |
|         | CDMA BC0              |          | 0.222      | 5mm      | -19.55                 | -74.9 | -2.55 |                  |                   |               |                  |
|         | LTE B13(MOD)+BT       | Back     | 1.433      | 5mm      | 30.23                  | 33.78 | -2.37 | 119.5            | 1.66              | 0.02          | Not required     |
|         | CDMA BC0              |          | 0.222      | 5mm      | -19.55                 | -74.9 | -2.55 |                  |                   |               |                  |

|         | Band                | Position | SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|---------|---------------------|----------|------------|----------|------------------------|--------|-------|------------------|-------------------|---------------|------------------|
|         |                     |          |            |          | X                      | Y      | Z     |                  |                   |               |                  |
| Case 14 | LTE B2(MOD)+WLAN5G  | Back     | 1.517      | 5mm      | 30.05                  | 39     | -1.98 | 122.2            | 1.68              | 0.02          | Not required     |
|         | CDMA BC1            |          | 0.166      | 5mm      | -4.85                  | -78.11 | -2.33 |                  |                   |               |                  |
|         | LTE B13(MOD)+WLAN5G | Back     | 1.519      | 5mm      | 30.23                  | 33.78  | -2.37 | 117.3            | 1.69              | 0.02          | Not required     |
|         | CDMA BC1            |          | 0.166      | 5mm      | -4.85                  | -78.11 | -2.33 |                  |                   |               |                  |

|         | Band                | Position | SAR (W/kg) | Gap (mm) | SAR peak location (mm) |       |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|---------|---------------------|----------|------------|----------|------------------------|-------|-------|------------------|-------------------|---------------|------------------|
|         |                     |          |            |          | X                      | Y     | Z     |                  |                   |               |                  |
| Case 15 | LTE B2(MOD)+WLAN5G  | Back     | 1.517      | 5mm      | 30.05                  | 39    | -1.98 | 122.2            | 1.68              | 0.02          | Not required     |
|         | LTE B2              |          | 0.162      | 5mm      | -4.84                  | -78.1 | -2.32 |                  |                   |               |                  |
|         | LTE B13(MOD)+WLAN5G | Back     | 1.519      | 5mm      | 30.23                  | 33.78 | -2.37 | 117.2            | 1.68              | 0.02          | Not required     |
|         | LTE B2              |          | 0.162      | 5mm      | -4.84                  | -78.1 | -2.32 |                  |                   |               |                  |

|         | Band                  | Position | SAR<br>(W/kg) | Gap<br>(mm) | SAR peak location (mm) |       |       | 3D<br>distance<br>(mm) | Summed<br>SAR<br>(W/kg) | SPLSR<br>Results | Simultaneous<br>SAR |
|---------|-----------------------|----------|---------------|-------------|------------------------|-------|-------|------------------------|-------------------------|------------------|---------------------|
|         |                       |          |               |             | X                      | Y     | Z     |                        |                         |                  |                     |
| Case 16 | LTE B2(MOD)+WLAN2.4G  | Back     | 1.428         | 5mm         | 30.05                  | 39    | -1.98 | 121.0                  | 1.57                    | 0.02             | Not required        |
|         | LTE B7                |          | 0.143         | 5mm         | -36                    | -62.4 | -1.47 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN2.4G | Back     | 1.43          | 5mm         | 30.23                  | 33.78 | -2.37 | 116.8                  | 1.57                    | 0.02             | Not required        |
|         | LTE B7                |          | 0.143         | 5mm         | -36                    | -62.4 | -1.47 |                        |                         |                  |                     |
|         | LTE B5(MOD)+WLAN2.4G  | Back     | 0.955         | 5mm         | 30.24                  | 34.7  | -2.38 | 117.5                  | 1.10                    | 0.01             | Not required        |
|         | LTE B7                |          | 0.143         | 5mm         | -36                    | -62.4 | -1.47 |                        |                         |                  |                     |
|         | LTE B66(MOD)+WLAN2.4G | Back     | 1.313         | 5mm         | 29.56                  | 36.29 | -2.21 | 118.5                  | 1.46                    | 0.01             | Not required        |
|         | LTE B7                |          | 0.143         | 5mm         | -36                    | -62.4 | -1.47 |                        |                         |                  |                     |
|         | LTE B48(MOD)+LTE 7    | Back     | 1.378         | 5mm         | 29.83                  | -64.6 | -2.05 | 133.0                  | 1.43                    | 0.01             | Not required        |
|         | WLAN2.4G              |          | 0.047         | 5mm         | 29.63                  | 68.41 | -0.44 |                        |                         |                  |                     |
|         | LTE B2(MOD)+WLAN5G    | Back     | 1.517         | 5mm         | 30.05                  | 39    | -1.98 | 121.0                  | 1.66                    | 0.02             | Not required        |
|         | LTE B7                |          | 0.143         | 5mm         | -36                    | -62.4 | -1.47 |                        |                         |                  |                     |
|         | LTE B5(MOD)+WLAN5G    | Back     | 1.044         | 5mm         | 30.24                  | 34.7  | -2.38 | 117.5                  | 1.19                    | 0.01             | Not required        |
|         | LTE B7                |          | 0.143         | 5mm         | -36                    | -62.4 | -1.47 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN5G   | Back     | 1.519         | 5mm         | 30.23                  | 33.78 | -2.37 | 116.8                  | 1.66                    | 0.02             | Not required        |
|         | LTE B7                |          | 0.143         | 5mm         | -36                    | -62.4 | -1.47 |                        |                         |                  |                     |
|         | LTE B66(MOD)+WLAN5G   | Back     | 1.402         | 5mm         | 29.56                  | 36.29 | -2.21 | 118.5                  | 1.55                    | 0.02             | Not required        |
|         | LTE B7                |          | 0.143         | 5mm         | -36                    | -62.4 | -1.47 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN5G   | Back     | 1.519         | 5mm         | 30.23                  | 33.78 | -2.37 | 116.8                  | 1.66                    | 0.02             | Not required        |
|         | LTE B7                |          | 0.143         | 5mm         | -36                    | -62.4 | -1.47 |                        |                         |                  |                     |
|         | LTE B48(MOD)+LTE 7    | Back     | 1.378         | 5mm         | 29.83                  | -64.6 | -2.05 | 131.6                  | 1.51                    | 0.01             | Not required        |
|         | WLAN5G                |          | 0.136         | 5mm         | 19.8                   | 66.6  | -0.98 |                        |                         |                  |                     |
|         | LTE B5(MOD)+BT        | Back     | 1.378         | 5mm         | 30.24                  | 34.7  | -2.38 | 120.4                  | 1.66                    | 0.02             | Not required        |
|         | LTE B7                |          | 0.282         | 5mm         | -19.55                 | -74.9 | -2.55 |                        |                         |                  |                     |
|         | LTE B2(MOD)+BT        | Back     | 1.431         | 5mm         | 30.05                  | 39    | -1.98 | 121.0                  | 1.57                    | 0.02             | Not required        |
|         | LTE B7                |          | 0.143         | 5mm         | -36                    | -62.4 | -1.47 |                        |                         |                  |                     |
|         | LTE B13(MOD)+BT       | Back     | 1.433         | 5mm         | 30.23                  | 33.78 | -2.37 | 116.8                  | 1.58                    | 0.02             | Not required        |
|         | LTE B7                |          | 0.143         | 5mm         | -36                    | -62.4 | -1.47 |                        |                         |                  |                     |
|         | LTE B66(MOD)+BT       | Back     | 1.316         | 5mm         | 29.56                  | 36.29 | -2.21 | 118.5                  | 1.46                    | 0.01             | Not required        |
|         | LTE B7                |          | 0.143         | 5mm         | -36                    | -62.4 | -1.47 |                        |                         |                  |                     |
|         | LTE B48(MOD)+LTE 7    | Back     | 1.378         | 5mm         | 29.83                  | -64.6 | -2.05 | 130.6                  | 1.43                    | 0.01             | Not required        |
|         | BT                    |          | 0.05          | 5mm         | 31.85                  | 66.02 | -0.47 |                        |                         |                  |                     |

|         | Band                  | Position | SAR<br>(W/kg) | Gap<br>(mm) | SAR peak location (mm) |       |       | 3D<br>distance<br>(mm) | Summed<br>SAR<br>(W/kg) | SPLSR<br>Results | Simultaneous<br>SAR |
|---------|-----------------------|----------|---------------|-------------|------------------------|-------|-------|------------------------|-------------------------|------------------|---------------------|
|         |                       |          |               |             | X                      | Y     | Z     |                        |                         |                  |                     |
| Case 17 | LTE B2(MOD)+WLAN2.4G  | Back     | 1.428         | 5mm         | 30.05                  | 39    | -1.98 | 124.2                  | 1.66                    | 0.02             | Not required        |
|         | LTE B13               |          | 0.229         | 5mm         | -19.59                 | -74.9 | -2.48 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN2.4G | Back     | 1.43          | 5mm         | 30.23                  | 33.78 | -2.37 | 119.6                  | 1.66                    | 0.02             | Not required        |
|         | LTE B13               |          | 0.229         | 5mm         | -19.59                 | -74.9 | -2.48 |                        |                         |                  |                     |
|         | LTE B5(MOD)+WLAN2.4G  | Back     | 0.955         | 5mm         | 30.24                  | 34.7  | -2.38 | 120.4                  | 1.18                    | 0.01             | Not required        |
|         | LTE B13               |          | 0.229         | 5mm         | -19.59                 | -74.9 | -2.48 |                        |                         |                  |                     |
|         | LTE B66(MOD)+WLAN2.4G | Back     | 1.313         | 5mm         | 29.56                  | 36.29 | -2.21 | 121.6                  | 1.54                    | 0.02             | Not required        |
|         | LTE B13               |          | 0.229         | 5mm         | -19.59                 | -74.9 | -2.48 |                        |                         |                  |                     |
|         | LTE B48(MOD)+LTE 13   | Back     | 1.464         | 5mm         | 29.83                  | -64.6 | -2.05 | 133.0                  | 1.51                    | 0.01             | Not required        |
|         | WLAN2.4G              |          | 0.047         | 5mm         | 29.63                  | 68.41 | -0.44 |                        |                         |                  |                     |
|         | LTE B2(MOD)+WLAN5G    | Back     | 1.517         | 5mm         | 30.05                  | 39    | -1.98 | 124.2                  | 1.75                    | 0.02             | Not required        |
|         | LTE B13               |          | 0.229         | 5mm         | -19.59                 | -74.9 | -2.48 |                        |                         |                  |                     |
|         | LTE B5(MOD)+WLAN5G    | Back     | 1.044         | 5mm         | 30.24                  | 34.7  | -2.38 | 120.4                  | 1.27                    | 0.01             | Not required        |
|         | LTE B13               |          | 0.229         | 5mm         | -19.59                 | -74.9 | -2.48 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN5G   | Back     | 1.519         | 5mm         | 30.23                  | 33.78 | -2.37 | 119.6                  | 1.75                    | 0.02             | Not required        |
|         | LTE B13               |          | 0.229         | 5mm         | -19.59                 | -74.9 | -2.48 |                        |                         |                  |                     |
|         | LTE B66(MOD)+WLAN5G   | Back     | 1.402         | 5mm         | 29.56                  | 36.29 | -2.21 | 121.6                  | 1.63                    | 0.02             | Not required        |
|         | LTE B13               |          | 0.229         | 5mm         | -19.59                 | -74.9 | -2.48 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN5G   | Back     | 1.519         | 5mm         | 30.23                  | 33.78 | -2.37 | 119.6                  | 1.75                    | 0.02             | Not required        |
|         | LTE B13               |          | 0.229         | 5mm         | -19.59                 | -74.9 | -2.48 |                        |                         |                  |                     |
|         | LTE B48(MOD)+LTE 13   | Back     | 1.464         | 5mm         | 29.83                  | -64.6 | -2.05 | 131.6                  | 1.60                    | 0.02             | Not required        |
|         | WLAN5G                |          | 0.136         | 5mm         | 19.8                   | 66.6  | -0.98 |                        |                         |                  |                     |
|         | LTE B5(MOD)+BT        | Back     | 1.378         | 5mm         | 30.24                  | 34.7  | -2.38 | 120.4                  | 1.61                    | 0.02             | Not required        |
|         | LTE B13               |          | 0.229         | 5mm         | -19.59                 | -74.9 | -2.48 |                        |                         |                  |                     |
|         | LTE B2(MOD)+BT        | Back     | 1.431         | 5mm         | 30.05                  | 39    | -1.98 | 124.2                  | 1.66                    | 0.02             | Not required        |
|         | LTE B13               |          | 0.229         | 5mm         | -19.59                 | -74.9 | -2.48 |                        |                         |                  |                     |
|         | LTE B13(MOD)+BT       | Back     | 1.433         | 5mm         | 30.23                  | 33.78 | -2.37 | 119.6                  | 1.66                    | 0.02             | Not required        |
|         | LTE B13               |          | 0.229         | 5mm         | -19.59                 | -74.9 | -2.48 |                        |                         |                  |                     |
|         | LTE B66(MOD)+BT       | Back     | 1.316         | 5mm         | 29.56                  | 36.29 | -2.21 | 121.6                  | 1.55                    | 0.02             | Not required        |
|         | LTE B13               |          | 0.229         | 5mm         | -19.59                 | -74.9 | -2.48 |                        |                         |                  |                     |
|         | LTE B48(MOD)+LTE 13   | Back     | 1.464         | 5mm         | 29.83                  | -64.6 | -2.05 | 130.6                  | 1.51                    | 0.01             | Not required        |
|         | BT                    |          | 0.05          | 5mm         | 31.85                  | 66.02 | -0.47 |                        |                         |                  |                     |

|         | Band                  | Position | SAR<br>(W/kg) | Gap<br>(mm) | SAR peak location (mm) |        |       | 3D<br>distance<br>(mm) | Summed<br>SAR<br>(W/kg) | SPLSR<br>Results | Simultaneous<br>SAR |
|---------|-----------------------|----------|---------------|-------------|------------------------|--------|-------|------------------------|-------------------------|------------------|---------------------|
|         |                       |          |               |             | X                      | Y      | Z     |                        |                         |                  |                     |
| Case 18 | LTE B13(MOD)+WLAN5G   | Back     | 1.519         | 5mm         | 30.23                  | 33.78  | -2.37 | 111.8                  | 1.77                    | 0.02             | Not required        |
|         | LTE B66               |          | 0.247         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN2.4G | Back     | 1.43          | 5mm         | 30.23                  | 33.78  | -2.37 | 111.8                  | 1.68                    | 0.02             | Not required        |
|         | LTE B66               |          | 0.247         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B13(MOD)+BT       | Back     | 1.433         | 5mm         | 30.23                  | 33.78  | -2.37 | 111.8                  | 1.68                    | 0.02             | Not required        |
|         | LTE B66               |          | 0.247         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B2(MOD)+WLAN2.4G  | Back     | 1.428         | 5mm         | 30.05                  | 39     | -1.98 | 116.6                  | 1.68                    | 0.02             | Not required        |
|         | LTE B66               |          | 0.247         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B2(MOD)+WLAN5G    | Back     | 1.517         | 5mm         | 30.05                  | 39     | -1.98 | 116.6                  | 1.76                    | 0.02             | Not required        |
|         | LTE B66               |          | 0.247         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B2(MOD)+BT        | Back     | 1.431         | 5mm         | 30.05                  | 39     | -1.98 | 116.6                  | 1.68                    | 0.02             | Not required        |
|         | LTE B66               |          | 0.247         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B66(MOD)+WLAN5G   | Back     | 1.402         | 5mm         | 29.56                  | 36.29  | -2.21 | 113.9                  | 1.65                    | 0.02             | Not required        |
|         | LTE B66               |          | 0.247         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B48(MOD)+LTE 66   | Back     | 1.482         | 5mm         | 29.83                  | -64.6  | -2.05 | 131.6                  | 1.62                    | 0.02             | Not required        |
|         | WLAN5G                |          | 0.136         | 5mm         | 19.8                   | 66.6   | -0.98 |                        |                         |                  |                     |

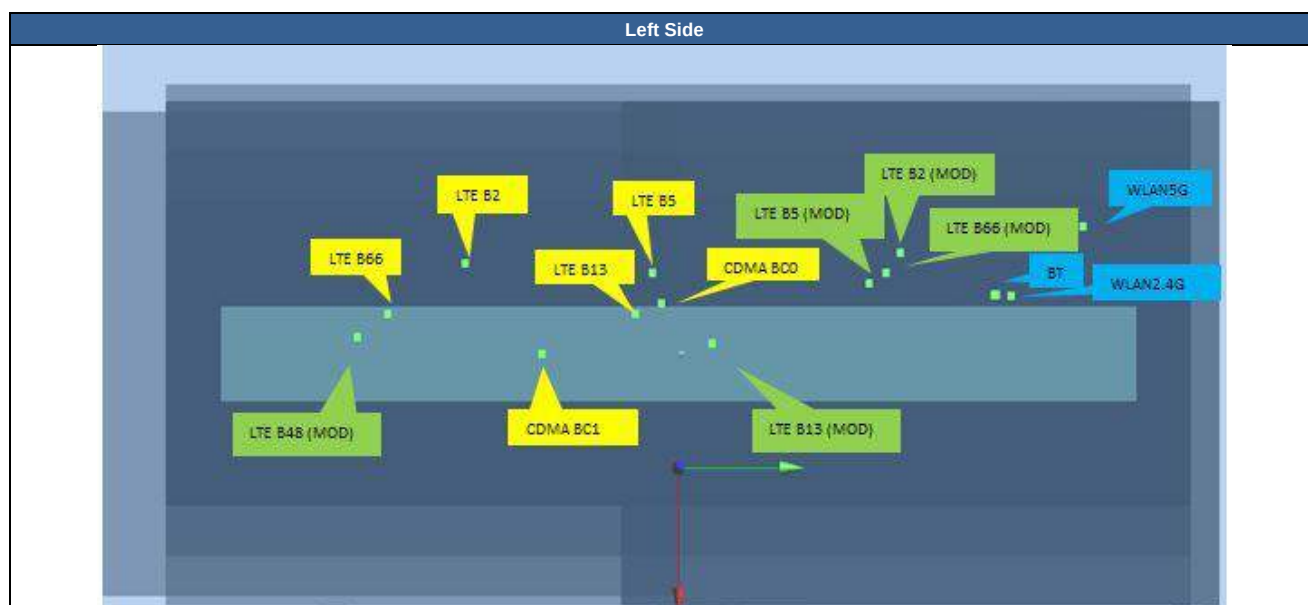
|         | Band                  | Position | SAR<br>(W/kg) | Gap<br>(mm) | SAR peak location (mm) |       |       | 3D<br>distance<br>(mm) | Summed<br>SAR<br>(W/kg) | SPLSR<br>Results | Simultaneous<br>SAR |
|---------|-----------------------|----------|---------------|-------------|------------------------|-------|-------|------------------------|-------------------------|------------------|---------------------|
|         |                       |          |               |             | X                      | Y     | Z     |                        |                         |                  |                     |
| Case 19 | LTE B2(MOD)+WLAN2.4G  | Back     | 1.428         | 5mm         | 30.05                  | 39    | -1.98 | 124.2                  | 1.71                    | 0.02             | Not required        |
|         | BC0                   |          | 0.282         | 5mm         | -19.55                 | -74.9 | -2.55 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN2.4G | Back     | 1.43          | 5mm         | 30.23                  | 33.78 | -2.37 | 119.5                  | 1.71                    | 0.02             | Not required        |
|         | BC0                   |          | 0.282         | 5mm         | -19.55                 | -74.9 | -2.55 |                        |                         |                  |                     |
|         | LTE B5(MOD)+WLAN2.4G  | Back     | 0.955         | 5mm         | 30.24                  | 34.7  | -2.38 | 120.4                  | 1.24                    | 0.01             | Not required        |
|         | BC0                   |          | 0.282         | 5mm         | -19.55                 | -74.9 | -2.55 |                        |                         |                  |                     |
|         | LTE B66(MOD)+WLAN2.4G | Back     | 1.313         | 5mm         | 29.56                  | 36.29 | -2.21 | 121.6                  | 1.60                    | 0.02             | Not required        |
|         | BC0                   |          | 0.282         | 5mm         | -19.55                 | -74.9 | -2.55 |                        |                         |                  |                     |
|         | LTE B48(MOD)+BC 0     | Back     | 1.517         | 5mm         | 29.83                  | -64.6 | -2.05 | 133.0                  | 1.56                    | 0.01             | Not required        |
|         | WLAN2.4G              |          | 0.047         | 5mm         | 29.63                  | 68.41 | -0.44 |                        |                         |                  |                     |
|         | LTE B2(MOD)+WLAN5G    | Back     | 1.517         | 5mm         | 30.05                  | 39    | -1.98 | 124.2                  | 1.80                    | 0.02             | Not required        |
|         | BC0                   |          | 0.282         | 5mm         | -19.55                 | -74.9 | -2.55 |                        |                         |                  |                     |
|         | LTE B5(MOD)+WLAN5G    | Back     | 1.044         | 5mm         | 30.24                  | 34.7  | -2.38 | 120.4                  | 1.33                    | 0.01             | Not required        |
|         | BC0                   |          | 0.282         | 5mm         | -19.55                 | -74.9 | -2.55 |                        |                         |                  |                     |
|         | LTE B66(MOD)+WLAN5G   | Back     | 1.402         | 5mm         | 29.56                  | 36.29 | -2.21 | 121.6                  | 1.68                    | 0.02             | Not required        |
|         | BC0                   |          | 0.282         | 5mm         | -19.55                 | -74.9 | -2.55 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN5G   | Back     | 1.519         | 5mm         | 30.23                  | 33.78 | -2.37 | 119.5                  | 1.80                    | 0.02             | Not required        |
|         | BC0                   |          | 0.282         | 5mm         | -19.55                 | -74.9 | -2.55 |                        |                         |                  |                     |
|         | LTE B48(MOD)+BC 0     | Back     | 1.517         | 5mm         | 29.83                  | -64.6 | -2.05 | 131.6                  | 1.65                    | 0.02             | Not required        |
|         | WLAN5G                |          | 0.136         | 5mm         | 19.8                   | 66.6  | -0.98 |                        |                         |                  |                     |
|         | LTE B5(MOD)+BT        | Back     | 1.378         | 5mm         | 30.24                  | 34.7  | -2.38 | 120.4                  | 1.66                    | 0.02             | Not required        |
|         | BC0                   |          | 0.282         | 5mm         | -19.55                 | -74.9 | -2.55 |                        |                         |                  |                     |
|         | LTE B2(MOD)+BT        | Back     | 1.431         | 5mm         | 30.05                  | 39    | -1.98 | 124.2                  | 1.71                    | 0.02             | Not required        |
|         | BC0                   |          | 0.282         | 5mm         | -19.55                 | -74.9 | -2.55 |                        |                         |                  |                     |
|         | LTE B13(MOD)+BT       | Back     | 1.433         | 5mm         | 30.23                  | 33.78 | -2.37 | 119.5                  | 1.72                    | 0.02             | Not required        |
|         | BC0                   |          | 0.282         | 5mm         | -19.55                 | -74.9 | -2.55 |                        |                         |                  |                     |
|         | LTE B66(MOD)+BT       | Back     | 1.316         | 5mm         | 29.56                  | 36.29 | -2.21 | 121.6                  | 1.60                    | 0.02             | Not required        |
|         | BC0                   |          | 0.282         | 5mm         | -19.55                 | -74.9 | -2.55 |                        |                         |                  |                     |
|         | LTE B48(MOD)+BC 0     | Back     | 1.517         | 5mm         | 29.83                  | -64.6 | -2.05 | 130.6                  | 1.57                    | 0.02             | Not required        |
|         | BT                    |          | 0.05          | 5mm         | 31.85                  | 66.02 | -0.47 |                        |                         |                  |                     |

|         | Band                  | Position | SAR<br>(W/kg) | Gap<br>(mm) | SAR peak location (mm) |        |       | 3D<br>distance<br>(mm) | Summed<br>SAR<br>(W/kg) | SPLSR<br>Results | Simultaneous<br>SAR |
|---------|-----------------------|----------|---------------|-------------|------------------------|--------|-------|------------------------|-------------------------|------------------|---------------------|
|         |                       |          |               |             | X                      | Y      | Z     |                        |                         |                  |                     |
| Case 20 | LTE B2(MOD)+WLAN2.4G  | Back     | 1.428         | 5mm         | 30.05                  | 39     | -1.98 | 122.2                  | 1.68                    | 0.02             | Not required        |
|         | BC 1                  |          | 0.249         | 5mm         | -4.85                  | -78.11 | -2.33 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN2.4G | Back     | 1.43          | 5mm         | 30.23                  | 33.78  | -2.37 | 117.3                  | 1.68                    | 0.02             | Not required        |
|         | BC 1                  |          | 0.249         | 5mm         | -4.85                  | -78.11 | -2.33 |                        |                         |                  |                     |
|         | LTE B5(MOD)+WLAN2.4G  | Back     | 0.955         | 5mm         | 30.24                  | 34.7   | -2.38 | 118.1                  | 1.20                    | 0.01             | Not required        |
|         | BC 1                  |          | 0.249         | 5mm         | -4.85                  | -78.11 | -2.33 |                        |                         |                  |                     |
|         | LTE B66(MOD)+WLAN2.4G | Back     | 1.313         | 5mm         | 29.56                  | 36.29  | -2.21 | 119.5                  | 1.56                    | 0.02             | Not required        |
|         | BC 1                  |          | 0.249         | 5mm         | -4.85                  | -78.11 | -2.33 |                        |                         |                  |                     |
|         | LTE B48(MOD)+BC 1     | Back     | 1.484         | 5mm         | 29.83                  | -64.6  | -2.05 | 133.0                  | 1.53                    | 0.01             | Not required        |
|         | WLAN2.4G              |          | 0.047         | 5mm         | 29.63                  | 68.41  | -0.44 |                        |                         |                  |                     |
|         | LTE B2(MOD)+WLAN5G    | Back     | 1.517         | 5mm         | 30.05                  | 39     | -1.98 | 122.2                  | 1.77                    | 0.02             | Not required        |
|         | BC 1                  |          | 0.249         | 5mm         | -4.85                  | -78.11 | -2.33 |                        |                         |                  |                     |
|         | LTE B5(MOD)+WLAN5G    | Back     | 1.044         | 5mm         | 30.24                  | 34.7   | -2.38 | 118.1                  | 1.29                    | 0.01             | Not required        |
|         | BC 1                  |          | 0.249         | 5mm         | -4.85                  | -78.11 | -2.33 |                        |                         |                  |                     |
|         | LTE B66(MOD)+WLAN5G   | Back     | 1.402         | 5mm         | 29.56                  | 36.29  | -2.21 | 119.5                  | 1.65                    | 0.02             | Not required        |
|         | BC 1                  |          | 0.249         | 5mm         | -4.85                  | -78.11 | -2.33 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN5G   | Back     | 1.519         | 5mm         | 30.23                  | 33.78  | -2.37 | 117.3                  | 1.77                    | 0.02             | Not required        |
|         | BC 1                  |          | 0.249         | 5mm         | -4.85                  | -78.11 | -2.33 |                        |                         |                  |                     |
|         | LTE B48(MOD)+BC 1     | Back     | 1.484         | 5mm         | 29.83                  | -64.6  | -2.05 | 131.6                  | 1.62                    | 0.02             | Not required        |
|         | WLAN5G                |          | 0.136         | 5mm         | 19.8                   | 66.6   | -0.98 |                        |                         |                  |                     |
|         | LTE B5(MOD)+BT        | Back     | 1.378         | 5mm         | 30.24                  | 34.7   | -2.38 | 118.1                  | 1.63                    | 0.02             | Not required        |
|         | BC 1                  |          | 0.249         | 5mm         | -4.85                  | -78.11 | -2.33 |                        |                         |                  |                     |
|         | LTE B2(MOD)+BT        | Back     | 1.431         | 5mm         | 30.05                  | 39     | -1.98 | 122.2                  | 1.68                    | 0.02             | Not required        |
|         | BC 1                  |          | 0.249         | 5mm         | -4.85                  | -78.11 | -2.33 |                        |                         |                  |                     |
|         | LTE B13(MOD)+BT       | Back     | 1.433         | 5mm         | 30.23                  | 33.78  | -2.37 | 117.3                  | 1.68                    | 0.02             | Not required        |
|         | BC 1                  |          | 0.249         | 5mm         | -4.85                  | -78.11 | -2.33 |                        |                         |                  |                     |
|         | LTE B66(MOD)+BT       | Back     | 1.316         | 5mm         | 29.56                  | 36.29  | -2.21 | 119.5                  | 1.57                    | 0.02             | Not required        |
|         | BC 1                  |          | 0.249         | 5mm         | -4.85                  | -78.11 | -2.33 |                        |                         |                  |                     |
|         | LTE B48(MOD)+BC 1     | Back     | 1.484         | 5mm         | 29.83                  | -64.6  | -2.05 | 130.6                  | 1.53                    | 0.01             | Not required        |
|         | BT                    |          | 0.05          | 5mm         | 31.85                  | 66.02  | -0.47 |                        |                         |                  |                     |

|         | Band                  | Position | SAR<br>(W/kg) | Gap<br>(mm) | SAR peak location (mm) |       |       | 3D<br>distance<br>(mm) | Summed<br>SAR<br>(W/kg) | SPLSR<br>Results | Simultaneous<br>SAR |
|---------|-----------------------|----------|---------------|-------------|------------------------|-------|-------|------------------------|-------------------------|------------------|---------------------|
|         |                       |          |               |             | X                      | Y     | Z     |                        |                         |                  |                     |
| Case 21 | LTE B2(MOD)+WLAN2.4G  | Back     | 1.428         | 5mm         | 30.05                  | 39    | -1.98 | 122.2                  | 1.67                    | 0.02             | Not required        |
|         | LTE 2                 |          | 0.239         | 5mm         | -4.84                  | -78.1 | -2.32 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN2.4G | Back     | 1.43          | 5mm         | 30.23                  | 33.78 | -2.37 | 117.2                  | 1.67                    | 0.02             | Not required        |
|         | LTE 2                 |          | 0.239         | 5mm         | -4.84                  | -78.1 | -2.32 |                        |                         |                  |                     |
|         | LTE B5(MOD)+WLAN2.4G  | Back     | 0.955         | 5mm         | 30.24                  | 34.7  | -2.38 | 118.1                  | 1.19                    | 0.01             | Not required        |
|         | LTE 2                 |          | 0.239         | 5mm         | -4.84                  | -78.1 | -2.32 |                        |                         |                  |                     |
|         | LTE B66(MOD)+WLAN2.4G | Back     | 1.313         | 5mm         | 29.56                  | 36.29 | -2.21 | 119.5                  | 1.55                    | 0.02             | Not required        |
|         | LTE 2                 |          | 0.239         | 5mm         | -4.84                  | -78.1 | -2.32 |                        |                         |                  |                     |
|         | LTE B48(MOD)+LTE 2    | Back     | 1.474         | 5mm         | 29.83                  | -64.6 | -2.05 | 133.0                  | 1.52                    | 0.01             | Not required        |
|         | WLAN2.4G              |          | 0.047         | 5mm         | 29.63                  | 68.41 | -0.44 |                        |                         |                  |                     |
|         | LTE B2(MOD)+WLAN5G    | Back     | 1.517         | 5mm         | 30.05                  | 39    | -1.98 | 122.2                  | 1.76                    | 0.02             | Not required        |
|         | LTE 2                 |          | 0.239         | 5mm         | -4.84                  | -78.1 | -2.32 |                        |                         |                  |                     |
|         | LTE B5(MOD)+WLAN5G    | Back     | 1.044         | 5mm         | 30.24                  | 34.7  | -2.38 | 118.1                  | 1.28                    | 0.01             | Not required        |
|         | LTE 2                 |          | 0.239         | 5mm         | -4.84                  | -78.1 | -2.32 |                        |                         |                  |                     |
|         | LTE B66(MOD)+WLAN5G   | Back     | 1.402         | 5mm         | 29.56                  | 36.29 | -2.21 | 119.5                  | 1.64                    | 0.02             | Not required        |
|         | LTE 2                 |          | 0.239         | 5mm         | -4.84                  | -78.1 | -2.32 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN5G   | Back     | 1.519         | 5mm         | 30.23                  | 33.78 | -2.37 | 117.2                  | 1.76                    | 0.02             | Not required        |
|         | LTE 2                 |          | 0.239         | 5mm         | -4.84                  | -78.1 | -2.32 |                        |                         |                  |                     |
|         | LTE B48(MOD)+LTE 2    | Back     | 1.474         | 5mm         | 29.83                  | -64.6 | -2.05 | 131.6                  | 1.61                    | 0.02             | Not required        |
|         | WLAN5G                |          | 0.136         | 5mm         | 19.8                   | 66.6  | -0.98 |                        |                         |                  |                     |
|         | LTE B5(MOD)+BT        | Back     | 1.378         | 5mm         | 30.24                  | 34.7  | -2.38 | 118.1                  | 1.62                    | 0.02             | Not required        |
|         | LTE 2                 |          | 0.239         | 5mm         | -4.84                  | -78.1 | -2.32 |                        |                         |                  |                     |
|         | LTE B2(MOD)+BT        | Back     | 1.431         | 5mm         | 30.05                  | 39    | -1.98 | 122.2                  | 1.67                    | 0.02             | Not required        |
|         | LTE 2                 |          | 0.239         | 5mm         | -4.84                  | -78.1 | -2.32 |                        |                         |                  |                     |
|         | LTE B13(MOD)+BT       | Back     | 1.433         | 5mm         | 30.23                  | 33.78 | -2.37 | 117.2                  | 1.67                    | 0.02             | Not required        |
|         | LTE 2                 |          | 0.239         | 5mm         | -4.84                  | -78.1 | -2.32 |                        |                         |                  |                     |
|         | LTE B66(MOD)+BT       | Back     | 1.316         | 5mm         | 29.56                  | 36.29 | -2.21 | 119.5                  | 1.56                    | 0.02             | Not required        |
|         | LTE 2                 |          | 0.239         | 5mm         | -4.84                  | -78.1 | -2.32 |                        |                         |                  |                     |
|         | LTE B48(MOD)+LTE 2    | Back     | 1.474         | 5mm         | 29.83                  | -64.6 | -2.05 | 130.6                  | 1.52                    | 0.01             | Not required        |
|         | BT                    |          | 0.05          | 5mm         | 31.85                  | 66.02 | -0.47 |                        |                         |                  |                     |

|         | Band                  | Position | SAR<br>(W/kg) | Gap<br>(mm) | SAR peak location (mm) |        |       | 3D<br>distance<br>(mm) | Summed<br>SAR<br>(W/kg) | SPLSR<br>Results | Simultaneous<br>SAR |
|---------|-----------------------|----------|---------------|-------------|------------------------|--------|-------|------------------------|-------------------------|------------------|---------------------|
|         |                       |          |               |             | X                      | Y      | Z     |                        |                         |                  |                     |
| Case 22 | LTE B2(MOD)+WLAN2.4G  | Back     | 1.428         | 5mm         | 30.05                  | 39     | -1.98 | 116.6                  | 1.74                    | 0.02             | Not required        |
|         | LTE 66                |          | 0.315         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN2.4G | Back     | 1.43          | 5mm         | 30.23                  | 33.78  | -2.37 | 111.8                  | 1.75                    | 0.02             | Not required        |
|         | LTE 66                |          | 0.315         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B5(MOD)+WLAN2.4G  | Back     | 0.955         | 5mm         | 30.24                  | 34.7   | -2.38 | 112.7                  | 1.27                    | 0.01             | Not required        |
|         | LTE 66                |          | 0.315         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B66(MOD)+WLAN2.4G | Back     | 1.313         | 5mm         | 29.56                  | 36.29  | -2.21 | 113.9                  | 1.63                    | 0.02             | Not required        |
|         | LTE 66                |          | 0.315         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B48(MOD)+LTE 66   | Back     | 1.55          | 5mm         | 29.83                  | -64.6  | -2.05 | 133.0                  | 1.60                    | 0.02             | Not required        |
|         | WLAN2.4G              |          | 0.047         | 5mm         | 29.63                  | 68.41  | -0.44 |                        |                         |                  |                     |
|         | LTE B2(MOD)+WLAN5G    | Back     | 1.517         | 5mm         | 30.05                  | 39     | -1.98 | 116.6                  | 1.83                    | 0.02             | Not required        |
|         | LTE 66                |          | 0.315         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B5(MOD)+WLAN5G    | Back     | 1.044         | 5mm         | 30.24                  | 34.7   | -2.38 | 112.7                  | 1.36                    | 0.01             | Not required        |
|         | LTE 66                |          | 0.315         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B66(MOD)+WLAN5G   | Back     | 1.402         | 5mm         | 29.56                  | 36.29  | -2.21 | 113.9                  | 1.72                    | 0.02             | Not required        |
|         | LTE 66                |          | 0.315         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN5G   | Back     | 1.519         | 5mm         | 30.23                  | 33.78  | -2.37 | 111.8                  | 1.83                    | 0.02             | Not required        |
|         | LTE 66                |          | 0.315         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B48(MOD)+LTE 66   | Back     | 1.55          | 5mm         | 29.83                  | -64.6  | -2.05 | 131.6                  | 1.69                    | 0.02             | Not required        |
|         | WLAN5G                |          | 0.136         | 5mm         | 19.8                   | 66.6   | -0.98 |                        |                         |                  |                     |
|         | LTE B5(MOD)+BT        | Back     | 1.378         | 5mm         | 30.24                  | 34.7   | -2.38 | 112.7                  | 1.69                    | 0.02             | Not required        |
|         | LTE 66                |          | 0.315         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B2(MOD)+BT        | Back     | 1.431         | 5mm         | 30.05                  | 39     | -1.98 | 116.6                  | 1.75                    | 0.02             | Not required        |
|         | LTE 66                |          | 0.315         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B13(MOD)+BT       | Back     | 1.433         | 5mm         | 30.23                  | 33.78  | -2.37 | 111.8                  | 1.75                    | 0.02             | Not required        |
|         | LTE 66                |          | 0.315         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B66(MOD)+BT       | Back     | 1.316         | 5mm         | 29.56                  | 36.29  | -2.21 | 113.9                  | 1.63                    | 0.02             | Not required        |
|         | LTE 66                |          | 0.315         | 5mm         | -10.37                 | -70.41 | -1.61 |                        |                         |                  |                     |
|         | LTE B48(MOD)+LTE 66   | Back     | 1.55          | 5mm         | 29.83                  | -64.6  | -2.05 | 130.6                  | 1.60                    | 0.02             | Not required        |
|         | BT                    |          | 0.05          | 5mm         | 31.85                  | 66.02  | -0.47 |                        |                         |                  |                     |

|         | Band                  | Position | SAR<br>(W/kg) | Gap<br>(mm) | SAR peak location (mm) |        |       | 3D<br>distance<br>(mm) | Summed<br>SAR<br>(W/kg) | SPLSR<br>Results | Simultaneous<br>SAR |
|---------|-----------------------|----------|---------------|-------------|------------------------|--------|-------|------------------------|-------------------------|------------------|---------------------|
|         |                       |          |               |             | X                      | Y      | Z     |                        |                         |                  |                     |
| Case 30 | LTE B2(MOD)+WLAN5G    | Back     | 1.308         | 5mm         | 30.05                  | 39     | -1.98 | 125.1                  | 1.61                    | 0.02             | Not required        |
|         | LTE B5                |          | 0.299         | 5mm         | -17.95                 | -76.51 | -2.54 |                        |                         |                  |                     |
|         | LTE B5(MOD)+WLAN5G    | Back     | 1.464         | 5mm         | 30.24                  | 34.7   | -2.38 | 121.2                  | 1.76                    | 0.02             | Not required        |
|         | LTE B5                |          | 0.299         | 5mm         | -17.95                 | -76.51 | -2.54 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN5G   | Back     | 1.519         | 5mm         | 30.23                  | 33.78  | -2.37 | 120.4                  | 1.82                    | 0.02             | Not required        |
|         | LTE B5                |          | 0.299         | 5mm         | -17.95                 | -76.51 | -2.54 |                        |                         |                  |                     |
|         | LTE B5(MOD)+WLAN2.4G  | Back     | 1.375         | 5mm         | 30.24                  | 34.7   | -2.38 | 121.2                  | 1.67                    | 0.02             | Not required        |
|         | LTE B5                |          | 0.299         | 5mm         | -17.95                 | -76.51 | -2.54 |                        |                         |                  |                     |
|         | LTE B13(MOD)+WLAN2.4G | Back     | 1.43          | 5mm         | 30.23                  | 33.78  | -2.37 | 120.4                  | 1.73                    | 0.02             | Not required        |
|         | LTE B5                |          | 0.299         | 5mm         | -17.95                 | -76.51 | -2.54 |                        |                         |                  |                     |
|         | LTE B5(MOD)+BT        | Back     | 1.378         | 5mm         | 30.24                  | 34.7   | -2.38 | 121.2                  | 1.68                    | 0.02             | Not required        |
|         | LTE B5                |          | 0.299         | 5mm         | -17.95                 | -76.51 | -2.54 |                        |                         |                  |                     |
|         | LTE B13(MOD)+BT       | Back     | 1.433         | 5mm         | 30.23                  | 33.78  | -2.37 | 120.4                  | 1.73                    | 0.02             | Not required        |
|         | LTE B5                |          | 0.299         | 5mm         | -17.95                 | -76.51 | -2.54 |                        |                         |                  |                     |
|         | LTE B48(MOD)+LTE B5   | Back     | 1.488         | 5mm         | -17.95                 | -76.51 | -2.54 | 153.0                  | 1.62                    | 0.01             | Not required        |
|         | WLAN5G                |          | 0.136         | 5mm         | 41.99                  | 64.23  | -0.26 |                        |                         |                  |                     |
|         | LTE B66(MOD)+WLAN2.4G | Back     | 1.313         | 5mm         | 29.56                  | 36.29  | -2.21 | 122.4                  | 1.61                    | 0.02             | Not required        |
|         | LTE B5                |          | 0.299         | 5mm         | -17.95                 | -76.51 | -2.54 |                        |                         |                  |                     |
|         | LTE B66(MOD)+BT       | Back     | 1.316         | 5mm         | 29.56                  | 36.29  | -2.21 | 122.4                  | 1.62                    | 0.02             | Not required        |
|         | LTE B5                |          | 0.299         | 5mm         | -17.95                 | -76.51 | -2.54 |                        |                         |                  |                     |
|         | LTE B66(MOD)+WLAN5G   | Back     | 1.402         | 5mm         | 29.56                  | 36.29  | -2.21 | 122.4                  | 1.70                    | 0.02             | Not required        |
|         | LTE B5                |          | 0.299         | 5mm         | -17.95                 | -76.51 | -2.54 |                        |                         |                  |                     |

**<Each transmitter hot point and SPLSR analysis for Left Side exposure position>**


|         | Band             | Position  | SAR<br>(W/kg) | Gap<br>(mm) | SAR peak location (mm) |       |       | 3D<br>distance<br>(mm) | Summed<br>SAR<br>(W/kg) | SPLSR<br>Results | Simultaneous<br>SAR |
|---------|------------------|-----------|---------------|-------------|------------------------|-------|-------|------------------------|-------------------------|------------------|---------------------|
|         |                  |           |               |             | X                      | Y     | Z     |                        |                         |                  |                     |
| Case 23 | LTE B13(MOD)+BC0 | Left Side | 0.909         | 5mm         | -3.05                  | 12.4  | -2.93 | 57.7                   | 1.82                    | 0.04             | Not required        |
|         | WLAN5G           |           | 0.912         | 5mm         | -17.6                  | 68.2  | -1.18 |                        |                         |                  |                     |
|         | LTE B48(MOD)     | Left Side | 0.993         | 5mm         | -8.4                   | -62.4 | -1.16 | 59.5                   | 1.31                    | 0.03             | Not required        |
|         | CDMA BC0         |           | 0.314         | 5mm         | -5.9                   | -3    | -1.9  |                        |                         |                  |                     |
|         | WLAN5G           | Left Side | 0.912         | 5mm         | -17.6                  | 68.2  | -1.18 | 72.2                   | 1.23                    | 0.02             | Not required        |
|         | CDMA BC0         |           | 0.314         | 5mm         | -5.9                   | -3    | -1.9  |                        |                         |                  |                     |
|         | WLAN5G           | Left Side | 0.912         | 5mm         | -17.6                  | 68.2  | -1.18 | 130.9                  | 1.91                    | 0.02             | Not required        |
|         | LTE B48(MOD)     |           | 0.993         | 5mm         | -8.4                   | -62.4 | -1.16 |                        |                         |                  |                     |
|         | LTE B48(MOD)     | Left Side | 0.993         | 5mm         | -8.4                   | -62.4 | -1.16 | 59.5                   | 1.31                    | 0.03             | Not required        |
|         | CDMA BC0         |           | 0.314         | 5mm         | -5.9                   | -3    | -1.9  |                        |                         |                  |                     |
|         | WLAN 2.4G        | Left Side | 0.384         | 5mm         | -24.2                  | 56.6  | -1.8  | 62.3                   | 0.70                    | 0.01             | Not required        |
|         | CDMA BC0         |           | 0.314         | 5mm         | -5.9                   | -3    | -1.9  |                        |                         |                  |                     |
|         | WLAN 2.4G        | Left Side | 0.384         | 5mm         | -24.2                  | 56.6  | -1.8  | 120.0                  | 1.38                    | 0.01             | Not required        |
|         | LTE B48(MOD)     |           | 0.993         | 5mm         | -8.4                   | -62.4 | -1.16 |                        |                         |                  |                     |
|         | LTE B48(MOD)     | Left Side | 0.993         | 5mm         | -8.4                   | -62.4 | -1.16 | 59.5                   | 1.31                    | 0.03             | Not required        |
|         | CDMA BC0         |           | 0.314         | 5mm         | -5.9                   | -3    | -1.9  |                        |                         |                  |                     |
|         | BT               | Left Side | 0.353         | 5mm         | -20.6                  | 63.6  | -1.8  | 68.2                   | 0.67                    | 0.01             | Not required        |
|         | CDMA BC0         |           | 0.314         | 5mm         | -5.9                   | -3    | -1.9  |                        |                         |                  |                     |
|         | BT               | Left Side | 0.353         | 5mm         | -20.6                  | 63.6  | -1.8  | 126.6                  | 1.35                    | 0.01             | Not required        |
|         | LTE B48(MOD)     |           | 0.993         | 5mm         | -8.4                   | -62.4 | -1.16 |                        |                         |                  |                     |

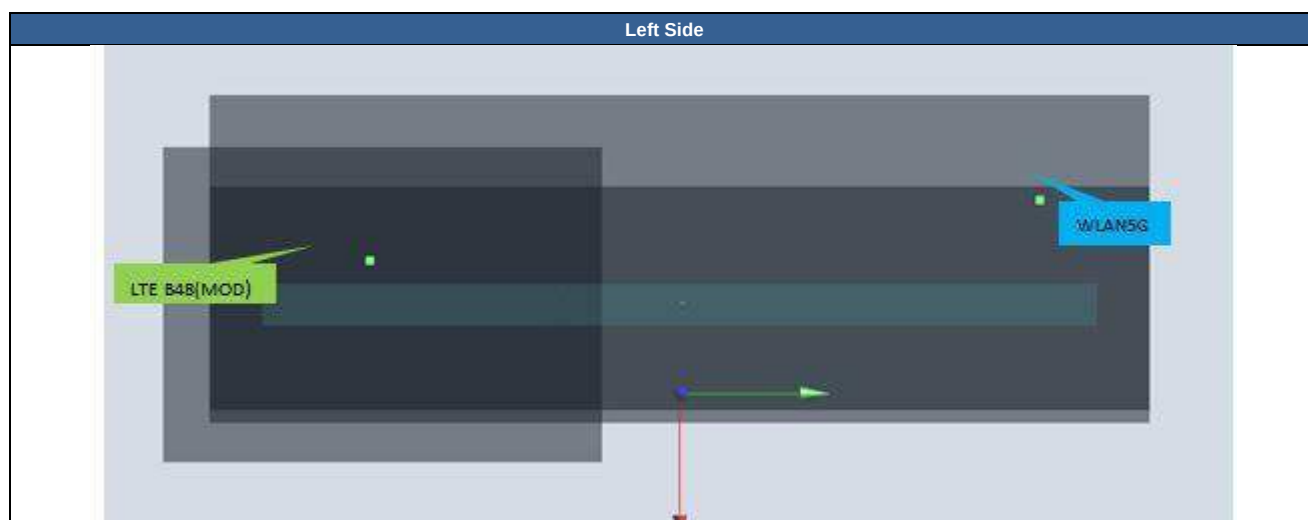
| Case 24 | Band         | Position  | SAR (W/kg) | Gap (mm) | SAR peak location (mm) |       |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|---------|--------------|-----------|------------|----------|------------------------|-------|-------|------------------|-------------------|---------------|------------------|
|         |              |           |            |          | X                      | Y     | Z     |                  |                   |               |                  |
| Case 24 | LTE B48(MOD) | Left Side | 0.993      | 5mm      | -8.4                   | -62.4 | -1.16 | 23.4             | 1.01              | 0.04          | Not required     |
|         | CDMA BC1     |           | 0.017      | 5mm      | -1.6                   | -40   | -1.53 |                  |                   |               |                  |
|         | WLAN5G       | Left Side | 0.912      | 5mm      | -17.6                  | 68.2  | -1.18 | 109.4            | 0.93              | 0.01          | Not required     |
|         | CDMA BC1     |           | 0.017      | 5mm      | -1.6                   | -40   | -1.53 |                  |                   |               |                  |
|         | WLAN5G       | Left Side | 0.912      | 5mm      | -17.6                  | 68.2  | -1.18 | 130.9            | 1.91              | 0.02          | Not required     |
|         | LTE B48(MOD) |           | 0.993      | 5mm      | -8.4                   | -62.4 | -1.16 |                  |                   |               |                  |

| Case 25 | Band                | Position  | SAR (W/kg) | Gap (mm) | SAR peak location (mm) |       |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|---------|---------------------|-----------|------------|----------|------------------------|-------|-------|------------------|-------------------|---------------|------------------|
|         |                     |           |            |          | X                      | Y     | Z     |                  |                   |               |                  |
| Case 25 | LTE B48(MOD)+LTE B2 | Left Side | 1.014      | 5mm      | -10.3                  | -53.5 | -1.27 | 121.9            | 1.93              | 0.02          | Not required     |
|         | WLAN5G              |           | 0.912      | 5mm      | -17.6                  | 68.2  | -1.18 |                  |                   |               |                  |

| Case 26 | Band                | Position  | SAR (W/kg) | Gap (mm) | SAR peak location (mm) |       |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|---------|---------------------|-----------|------------|----------|------------------------|-------|-------|------------------|-------------------|---------------|------------------|
|         |                     |           |            |          | X                      | Y     | Z     |                  |                   |               |                  |
| Case 26 | LTE B13(MOD)+LTE B5 | Left Side | 0.925      | 5mm      | -3.05                  | 12.4  | -2.93 | 57.7             | 1.84              | 0.04          | Not required     |
|         | WLAN5G              |           | 0.912      | 5mm      | -17.6                  | 68.2  | -1.18 |                  |                   |               |                  |
|         | LTE B48(MOD)        | Left Side | 0.993      | 5mm      | -8.4                   | -62.4 | -1.16 | 59.7             | 1.32              | 0.03          | Not required     |
|         | LTE B5              |           | 0.33       | 5mm      | -13.6                  | -2.9  | -1.61 |                  |                   |               |                  |
|         | WLAN5G              | Left Side | 0.912      | 5mm      | -17.6                  | 68.2  | -1.18 | 71.2             | 1.24              | 0.02          | Not required     |
|         | LTE B5              |           | 0.33       | 5mm      | -13.6                  | -2.9  | -1.61 |                  |                   |               |                  |
|         | WLAN5G              | Left Side | 0.912      | 5mm      | -17.6                  | 68.2  | -1.18 | 130.9            | 1.91              | 0.02          | Not required     |
|         | LTE B48(MOD)        |           | 0.993      | 5mm      | -8.4                   | -62.4 | -1.16 |                  |                   |               |                  |
|         | LTE B48(MOD)        | Left Side | 0.993      | 5mm      | -8.4                   | -62.4 | -1.16 | 59.7             | 1.32              | 0.03          | Not required     |
|         | LTE B5              |           | 0.33       | 5mm      | -13.6                  | -2.9  | -1.61 |                  |                   |               |                  |
|         | WLAN 2.4G           | Left Side | 0.384      | 5mm      | -24.2                  | 56.6  | -1.8  | 60.4             | 0.71              | 0.01          | Not required     |
|         | LTE B5              |           | 0.33       | 5mm      | -13.6                  | -2.9  | -1.61 |                  |                   |               |                  |
|         | WLAN 2.4G           | Left Side | 0.384      | 5mm      | -24.2                  | 56.6  | -1.8  | 120.0            | 1.38              | 0.01          | Not required     |
|         | LTE B48(MOD)        |           | 0.993      | 5mm      | -8.4                   | -62.4 | -1.16 |                  |                   |               |                  |
|         | LTE B48(MOD)        | Left Side | 0.993      | 5mm      | -8.4                   | -62.4 | -1.16 | 59.7             | 1.32              | 0.03          | Not required     |
|         | LTE B5              |           | 0.33       | 5mm      | -13.6                  | -2.9  | -1.61 |                  |                   |               |                  |
|         | BT                  | Left Side | 0.353      | 5mm      | -20.6                  | 63.6  | -1.8  | 66.9             | 0.68              | 0.01          | Not required     |
|         | LTE B5              |           | 0.33       | 5mm      | -13.6                  | -2.9  | -1.61 |                  |                   |               |                  |
|         | BT                  | Left Side | 0.353      | 5mm      | -20.6                  | 63.6  | -1.8  | 126.6            | 1.35              | 0.01          | Not required     |
|         | LTE B48(MOD)        |           | 0.993      | 5mm      | -8.4                   | -62.4 | -1.16 |                  |                   |               |                  |

|         | Band                 | Position  | SAR<br>(W/kg) | Gap  | SAR peak location (mm) |       |       | 3D<br>distance<br>(mm) | Summed<br>SAR<br>(W/kg) | SPLSR<br>Results | Simultaneous<br>SAR |
|---------|----------------------|-----------|---------------|------|------------------------|-------|-------|------------------------|-------------------------|------------------|---------------------|
|         |                      |           |               | (mm) | X                      | Y     | Z     |                        |                         |                  |                     |
| Case 28 | LTE B13(MOD)+LTE B13 | Left Side | 0.925         | 5mm  | -3.05                  | 12.4  | -2.93 | 57.7                   | 1.84                    | 0.04             | Not required        |
|         | WLAN5G               |           | 0.912         | 5mm  | -17.6                  | 68.2  | -1.18 |                        |                         |                  |                     |
|         | LTE B48(MOD)         | Left Side | 0.993         | 5mm  | -8.4                   | -62.4 | -1.16 | 55.0                   | 1.38                    | 0.03             | Not required        |
|         | LTE B13              |           | 0.382         | 5mm  | -6                     | -7.5  | -1.93 |                        |                         |                  |                     |
|         | WLAN5G               | Left Side | 0.912         | 5mm  | -17.6                  | 68.2  | -1.18 | 76.6                   | 1.29                    | 0.02             | Not required        |
|         | LTE B13              |           | 0.382         | 5mm  | -6                     | -7.5  | -1.93 |                        |                         |                  |                     |
|         | WLAN5G               | Left Side | 0.912         | 5mm  | -17.6                  | 68.2  | -1.18 | 130.9                  | 1.91                    | 0.02             | Not required        |
|         | LTE B48(MOD)         |           | 0.993         | 5mm  | -8.4                   | -62.4 | -1.16 |                        |                         |                  |                     |
|         | LTE B48(MOD)         | Left Side | 0.993         | 5mm  | -8.4                   | -62.4 | -1.16 | 55.0                   | 1.38                    | 0.03             | Not required        |
|         | LTE B13              |           | 0.382         | 5mm  | -6                     | -7.5  | -1.93 |                        |                         |                  |                     |
|         | WLAN 2.4G            | Left Side | 0.384         | 5mm  | -24.2                  | 56.6  | -1.8  | 66.6                   | 0.77                    | 0.01             | Not required        |
|         | LTE B13              |           | 0.382         | 5mm  | -6                     | -7.5  | -1.93 |                        |                         |                  |                     |
|         | WLAN 2.4G            | Left Side | 0.384         | 5mm  | -24.2                  | 56.6  | -1.8  | 120.0                  | 1.38                    | 0.01             | Not required        |
|         | LTE B48(MOD)         |           | 0.993         | 5mm  | -8.4                   | -62.4 | -1.16 |                        |                         |                  |                     |
|         | LTE B48(MOD)         | Left Side | 0.993         | 5mm  | -8.4                   | -62.4 | -1.16 | 55.0                   | 1.38                    | 0.03             | Not required        |
|         | LTE B13              |           | 0.382         | 5mm  | -6                     | -7.5  | -1.93 |                        |                         |                  |                     |
|         | BT                   | Left Side | 0.353         | 5mm  | -20.6                  | 63.6  | -1.8  | 72.6                   | 0.74                    | 0.01             | Not required        |
|         | LTE B13              |           | 0.382         | 5mm  | -6                     | -7.5  | -1.93 |                        |                         |                  |                     |
|         | BT                   | Left Side | 0.353         | 5mm  | -20.6                  | 63.6  | -1.8  | 126.6                  | 1.35                    | 0.01             | Not required        |
|         | LTE B48(MOD)         |           | 0.993         | 5mm  | -8.4                   | -62.4 | -1.16 |                        |                         |                  |                     |

|         | Band                 | Position  | SAR<br>(W/kg) | Gap  | SAR peak location (mm) |      |       | 3D<br>distance<br>(mm) | Summed<br>SAR<br>(W/kg) | SPLSR<br>Results | Simultaneous<br>SAR |
|---------|----------------------|-----------|---------------|------|------------------------|------|-------|------------------------|-------------------------|------------------|---------------------|
|         |                      |           |               | (mm) | X                      | Y    | Z     |                        |                         |                  |                     |
| Case 29 | WLAN5G               | Left Side | 0.912         | 5mm  | -17.6                  | 68.2 | -1.18 | 119.8                  | 1.98                    | 0.02             | Not required        |
|         | LTE B48(MOD)+LTE B66 |           | 1.072         | 5mm  | -6                     | -51  | -1.45 |                        |                         |                  |                     |

**<Each transmitter hot point and SPLSR analysis for Left Side exposure position>**


| Case 30 | Band         | Position  | SAR<br>(W/kg) | Gap<br>(mm) | SAR peak location (mm) |       |       | 3D<br>distance<br>(mm) | Summed<br>SAR<br>(W/kg) | SPLSR<br>Results | Simultaneous<br>SAR |
|---------|--------------|-----------|---------------|-------------|------------------------|-------|-------|------------------------|-------------------------|------------------|---------------------|
|         |              |           |               |             | X                      | Y     | Z     |                        |                         |                  |                     |
|         |              |           |               |             |                        |       |       |                        |                         |                  |                     |
|         | WLAN5G       | Left Side | 0.912         | 5mm         | -17.6                  | 68.2  | -1.18 | 130.9                  | 1.91                    | 0.02             | Not required        |
|         | LTE B48(MOD) |           | 0.993         | 5mm         | -8.4                   | -62.4 | -1.16 |                        |                         |                  |                     |

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## **16. Uncertainty Assessment**

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be  $\leq 30\%$ , for a confidence interval of  $k = 2$ . If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg. Therefore, the measurement uncertainty table is not required in this report.

## **17. References**

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
- [2] ANSI/IEEE Std. C95.1-1992, "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz", September 1992
- [3] IEEE Std. 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", Sep 2013
- [4] SPEAG DASY System Handbook
- [5] FCC KDB 248227 D01 v02r02, "SAR Guidance for IEEE 802.11 (WiFi) Transmitters", Oct 2015.
- [6] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [7] FCC KDB 648474 D03 v01r04, "Evaluation and Approval Considerations for Handsets with Specific Wireless Charging Battery Covers" Dec 2015.
- [8] FCC KDB 648474 D04 v01r03, "SAR Evaluation Considerations for Wireless Handsets", Oct 2015.
- [9] FCC KDB 941225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [10] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
- [11] FCC KDB 941225 D05A v01r02, "Rel. 10 LTE SAR Test Guidance and KDB Inquiries", Oct 2015
- [12] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.
- [13] FCC KDB 941225 D07 v01r02, " SAR Evaluation Procedures for UMPC Mini-Tablet Devices", Oct 2015.
- [14] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [15] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.