



# FCC SAR TEST REPORT

FCC ID : IHDT56YG2  
Equipment : Mobile Cellular Phone  
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 Jul. 29, 2019 and testing was started from Jul. 31, 2019 and completed on Aug. 14, 2019. 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 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

**SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory**  
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## History of this test report

| Report No. | Version | Description             | Issued Date   |
|------------|---------|-------------------------|---------------|
| FA962518   | 01      | Initial issue of report | Aug. 26, 2019 |
|            |         |                         |               |
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## 1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Motorola Mobility LLC, Mobile Cellular Phone, 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         | GSM850         | 0.11                     | 0.69                          | 0.69                        |                                      | 1.59                                               |
|                  | GSM1900        | 0.17                     | 1.29                          | 1.34                        | 2.35                                 |                                                    |
|                  | WCDMA II       | 0.34                     | 1.30                          | 1.32                        | 3.24                                 |                                                    |
|                  | WCDMA IV       | 0.25                     | 1.34                          | 1.38                        | 3.58                                 |                                                    |
|                  | WCDMA V        | 0.31                     | 1.36                          | 1.36                        | 2.57                                 |                                                    |
|                  | LTE Band 2     | 0.20                     | 1.34                          | 1.34                        | 3.48                                 |                                                    |
|                  | LTE Band 5     | 0.28                     | 1.35                          | 1.35                        | 1.92                                 |                                                    |
|                  | LTE Band 7     | 0.54                     | 1.33                          | 1.33                        | 3.23                                 |                                                    |
|                  | LTE Band 12/17 | 0.08                     | 0.89                          | 0.89                        |                                      |                                                    |
|                  | LTE Band 4/66  | 0.27                     | 1.31                          | 1.31                        | 2.89                                 |                                                    |
| DTS              | 2.4GHz WLAN    | 1.31                     | 1.12                          | 1.12                        |                                      | 1.59                                               |
| NII              | 5GHz WLAN      | 0.25                     | 1.38                          | 0.91                        | 2.03                                 | 1.38                                               |
| DSS              | Bluetooth      | 0.15                     | 0.15                          | 0.15                        |                                      | 1.51                                               |
| Date of Testing: |                | 2019/7/31 ~ 2019/8/14    |                               |                             |                                      |                                                    |

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.. 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 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
- FCC KDB 941225 D07 UMPC Mini Tablet v01r02

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

#### **3.1 General Information**

| <b>Product Feature &amp; Specification</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Equipment Name</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Mobile Cellular Phone                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Brand Name</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Motorola                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>FCC ID</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | IHDT56YG2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Wireless Technology and Frequency Range</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | GSM850: 824.2 MHz ~ 848.8 MHz<br>GSM1900: 1850.2 MHz ~ 1909.8 MHz<br>WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz<br>WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz<br>WCDMA Band V: 826.4 MHz ~ 846.6 MHz<br>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 7: 2502.5 MHz ~ 2567.5 MHz<br>LTE Band 12: 699.7 MHz ~ 715.3 MHz<br>LTE Band 17: 706.5 MHz ~ 713.5 MHz<br>LTE Band 66: 1710.7 MHz ~ 1779.3 MHz<br>WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz<br>WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz<br>WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz<br>WLAN 5.5GHz Band: 5500 MHz ~ 5720 MHz<br>WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz<br>Bluetooth: 2402 MHz ~ 2480 MHz |
| <b>Mode</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | GSM/GPRS/EGPRS<br>AMR/RMC 12.2Kbps<br>HSDPA<br>HSUPA<br>DC-HSDPA<br>LTE: QPSK, 16QAM, 64QAM<br>WLAN: 802.11a/b/g/n/ac HT20 / HT40 / VHT20 / VHT40 / VHT80<br>Bluetooth BR/EDR/LE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>HW Version</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | DVT2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>SW Version</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | PPI29.35                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>GSM / (E)GPRS Transfer mode</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>EUT Stage</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Identical Prototype                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Remark:</b> <ol style="list-style-type: none"> <li>1. This device WLAN 2.4GHz / 5.2GHz / 5.8GHz supports Hotspot operation and Bluetooth support tethering applications.</li> <li>2. This device implements antenna tuning techniques for WCDMA B2/B4/B5 and LTE B2/B4/B5/B12/B17/B66. Specifically, this technique is employed in the WCDMA and LTE modes. In this report SAR was measured according to the normally required SAR configurations with the tuner active and worst tune state (auto tune) was used for SAR testing. The detail descriptions of the antenna tuner are included in the operational description and supplemental data for additional information on section16.</li> <li>3. When operating in a body-worn condition, with proximity of the user's body at the front or back of the device, the device operates in the Body-Worn power table. If neither the Body-Worn condition is detected, but the device is operating in WiFi Hotspot mode, the device utilizes the Hotspot power table. When operating in any other radiated condition, the device uses the Default power table.</li> <li>4. The device employs proximity sensors that detect the presence of the user's body at the front or back faces of the device. The control logic is such that, when this front or back body-worn condition is detected and the device is operating in a mode where on-body operation may be expected, the conducted power is applied in the Body-Worn power table. In this condition (user's body detected at front or back face of the device), the Body-Worn power table is applied regardless whether or not the Wi-Fi hotspot mode is active.</li> <li>5. Note that the Body-Worn Reduced power tables and detection schemes described above are sufficient to assure that body-worn SAR limits are met, regardless whether the Wi-Fi hotspot feature is active or not. However, because FCC has an additional specific test definition and limit for Wi-Fi hotspot mode operation, the additional Hotspot power table is applied if hand-held operation is indicated (i.e., not At-Head or Body-Worn) when the Wi-Fi hotspot feature is active. This ensures the 4 edges of the device comply with the letter of the Wi-Fi Hotspot requirement.</li> </ol> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

6. The device additionally employs proximity sensors that detect the presence of tissue near the currently active transmit antenna (if that antenna may require reduced power relative the Default power table in order to meet extremity SAR limits). The control logic is such that, if the Body-Worn or WiFi Hotspot conditions are not detected, but tissue (as a finger or hand, for example) is detected near the transmitting antenna, the Handheld power table will be applied
- Reduced power for different RF exposure conditions:
- Body worn: The device employs proximity sensors that detect the presence of the user's body at the front or back faces of the device, when operating in near-body condition by end user, the device will reduced maximum output powers on the WCDMA B2 / B4 / B5 and LTE B2 / B4 / B7 / B66 and 5GHz WLAN transmitter and detail descriptions of the power reduction mechanism are included in the operational description.
- Hotspot: When the mobile hotspot session is turn on by end user, the device will reduced output powers on the GSM1900, WCDMA B2 / B4 / B5 and LTE B2 / B4 / B7 / B66 and 5GHz WLAN transmitter and detail descriptions of the power reduction mechanism are included in the operational description.
- Handheld: The device additionally employs proximity sensors that detect the presence of tissue near the currently active transmit antenna, the device will reduced output powers on the WCDMA B2 / B4, LTE B2 / B4 / B7 / B66 transmitter and detail descriptions of the power reduction mechanism are included in the operational description.

| Accessories Information |            |                      |            |                 |
|-------------------------|------------|----------------------|------------|-----------------|
| Earphone 1              | Brand Name | Motorola(Lianyun)    | Model Name | SH38C37773      |
| Earphone 2              | Brand Name | Motorola(Cosonic)    | Model Name | SH38C44959      |
| Earphone 3              | Brand Name | Motorola(NEW LEADER) | Model Name | NLD-EM303H-10SF |

### 3.2 Maximum Tune-up Limit

<Maximum power for each bands and exposure conditions>

| TX. freq.               | Default                  | Head                    |                      | Body Worn               |                      | Hotspot                 |                      | Product Specific        |                      |
|-------------------------|--------------------------|-------------------------|----------------------|-------------------------|----------------------|-------------------------|----------------------|-------------------------|----------------------|
|                         | max. tune up limit (dBm) | max. tune up limit(dBm) | power reduction (dB) | max. tune up limit(dBm) | power reduction (dB) | max. tune up limit(dBm) | power reduction (dB) | max. tune up limit(dBm) | power reduction (dB) |
| GSM850 GSM 1 Tx slot    | 33.50                    | 33.50                   | 0                    | 33.50                   | 0                    | 33.50                   | 0                    | 33.50                   | 0                    |
| GSM850 GPRS 1 Tx slot   | 33.50                    | 33.50                   | 0                    | 33.50                   | 0                    | 33.50                   | 0                    | 33.50                   | 0                    |
| GSM850 GPRS 2 Tx slots  | 31.50                    | 31.50                   | 0                    | 31.50                   | 0                    | 31.50                   | 0                    | 31.50                   | 0                    |
| GSM850 GPRS 3 Tx slots  | 29.00                    | 29.00                   | 0                    | 29.00                   | 0                    | 29.00                   | 0                    | 29.00                   | 0                    |
| GSM850 GPRS 4 Tx slots  | 27.50                    | 27.50                   | 0                    | 27.50                   | 0                    | 27.50                   | 0                    | 27.50                   | 0                    |
| GSM850 EDGE 1 Tx slot   | 27.50                    | 27.50                   | 0                    | 27.50                   | 0                    | 27.50                   | 0                    | 27.50                   | 0                    |
| GSM850 EDGE 2 Tx slots  | 25.50                    | 25.50                   | 0                    | 25.50                   | 0                    | 25.50                   | 0                    | 25.50                   | 0                    |
| GSM850 EDGE 3 Tx slots  | 23.50                    | 23.50                   | 0                    | 23.50                   | 0                    | 23.50                   | 0                    | 23.50                   | 0                    |
| GSM850 EDGE 4 Tx slots  | 22.00                    | 22.00                   | 0                    | 22.00                   | 0                    | 22.00                   | 0                    | 22.00                   | 0                    |
| GSM1900 GSM 1 Tx slot   | 30.50                    | 30.50                   | 0                    | 30.50                   | 0                    | 28.50                   | 2                    | 30.50                   | 0                    |
| GSM1900 GPRS 1 Tx slot  | 30.50                    | 30.50                   | 0                    | 30.50                   | 0                    | 28.50                   | 2                    | 30.50                   | 0                    |
| GSM1900 GPRS 2 Tx slots | 28.50                    | 28.50                   | 0                    | 28.50                   | 0                    | 26.00                   | 2.5                  | 28.50                   | 0                    |
| GSM1900 GPRS 3 Tx slots | 26.50                    | 26.50                   | 0                    | 26.50                   | 0                    | 24.00                   | 2.5                  | 26.50                   | 0                    |
| GSM1900 GPRS 4 Tx slots | 24.50                    | 24.50                   | 0                    | 24.50                   | 0                    | 22.50                   | 2                    | 24.50                   | 0                    |
| GSM1900 EDGE 1 Tx slot  | 27.00                    | 27.00                   | 0                    | 27.00                   | 0                    | 27.00                   | 0                    | 27.00                   | 0                    |
| GSM1900 EDGE 2 Tx slots | 25.00                    | 25.00                   | 0                    | 25.00                   | 0                    | 25.00                   | 0                    | 25.00                   | 0                    |
| GSM1900 EDGE 3 Tx slots | 23.00                    | 23.00                   | 0                    | 23.00                   | 0                    | 23.00                   | 0                    | 23.00                   | 0                    |
| GSM1900 EDGE 4 Tx slots | 21.00                    | 21.00                   | 0                    | 21.00                   | 0                    | 21.00                   | 0                    | 21.00                   | 0                    |
| WCDMA II                | 24.00                    | 24.00                   | 0                    | 21.00                   | 3                    | 18.00                   | 6                    | 22.00                   | 2                    |
| WCDMA VI                | 24.00                    | 24.00                   | 0                    | 20.00                   | 4                    | 18.00                   | 6                    | 22.00                   | 2                    |
| WCDMA V                 | 24.00                    | 24.00                   | 0                    | 23.00                   | 1                    | 23.00                   | 1                    | 23.00                   | 1                    |
| LTE B2                  | 24.00                    | 24.00                   | 0                    | 21.50                   | 2.5                  | 18.50                   | 5.5                  | 22.00                   | 2                    |
| LTE B5                  | 24.00                    | 24.00                   | 0                    | 24.00                   | 0                    | 24.00                   | 0                    | 24.00                   | 0                    |
| LTE B7                  | 24.00                    | 24.00                   | 0                    | 22.00                   | 2                    | 22.00                   | 2                    | 22.50                   | 1.5                  |
| LTE B12/17              | 24.00                    | 24.00                   | 0                    | 24.00                   | 0                    | 24.00                   | 0                    | 24.00                   | 0                    |
| LTE B4/B66              | 24.00                    | 24.00                   | 0                    | 20.50                   | 3.5                  | 18.50                   | 5.5                  | 22.50                   | 1.5                  |

| TX. freq. | Default                  | Head                    |                      | Body Worn               |                      | Hotspot                 |                      | Product Specific        |                      |
|-----------|--------------------------|-------------------------|----------------------|-------------------------|----------------------|-------------------------|----------------------|-------------------------|----------------------|
|           | max. tune up limit (dBm) | max. tune up limit(dBm) | power reduction (dB) | max. tune up limit(dBm) | power reduction (dB) | max. tune up limit(dBm) | power reduction (dB) | max. tune up limit(dBm) | power reduction (dB) |
| WLAN2.4G  | 19.00                    | 19.00                   | 0                    | 19.00                   | 0                    | 19.00                   | 0                    | 19.00                   | 0                    |
| WLAN5.2G  | 17.00                    | 17.00                   | 0                    | 15.00                   | 2                    | 15.00                   | 2                    | 17.00                   | 0                    |
| WLAN5.3G  | 17.00                    | 17.00                   | 0                    | 17.00                   | 0                    |                         |                      | 17.00                   | 0                    |
| WLAN5.5G  | 16.50                    | 16.50                   | 0                    | 14.00                   | 2.5                  |                         |                      | 16.50                   | 0                    |
| WLAN5.8G  | 16.00                    | 16.00                   | 0                    | 13.00                   | 3                    | 13.00                   | 3                    | 16.00                   | 0                    |
| BT        | 13.00                    | 13.00                   | 0                    | 13.00                   | 0                    | 13.00                   | 0                    | 13.00                   | 0                    |

### 3.3 General LTE SAR Test and Reporting Considerations

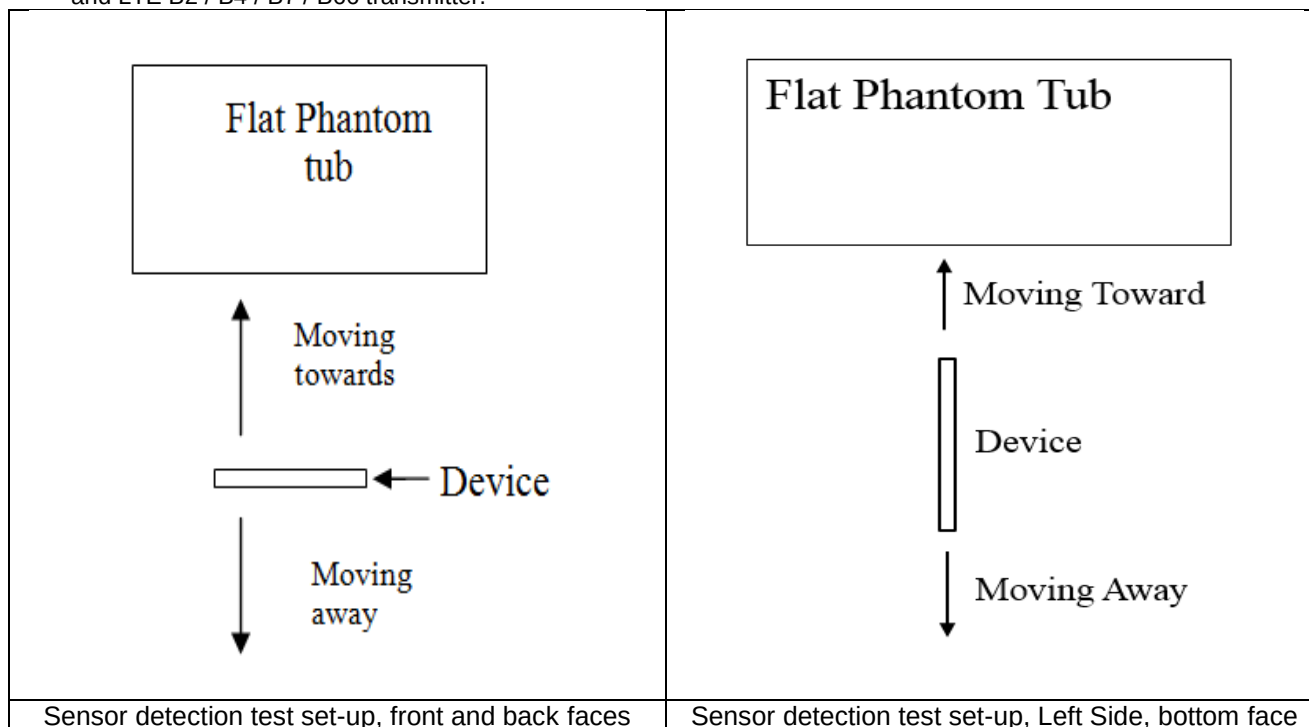
| Summarized necessary items addressed in KDB 941225 D05 v02r05           |                   |             |                                                                                                                                                                                                                                                                                                                           |                                                               |                 |             |                  |             |                  |             |                  |             |
|-------------------------------------------------------------------------|-------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|
| FCC ID                                                                  |                   |             | IHDT56YG2                                                                                                                                                                                                                                                                                                                 |                                                               |                 |             |                  |             |                  |             |                  |             |
| Equipment Name                                                          |                   |             | Mobile Cellular Phone                                                                                                                                                                                                                                                                                                     |                                                               |                 |             |                  |             |                  |             |                  |             |
| 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 7: 2502.5 MHz ~ 2567.5 MHz<br>LTE Band 12: 699.7 MHz ~ 715.3 MHz<br>LTE Band 17: 706.5 MHz ~ 713.5 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 07: 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz<br>LTE Band 17: 5MHz, 10MHz<br>LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz |                                                               |                 |             |                  |             |                  |             |                  |             |
| uplink modulations used                                                 |                   |             | QPSK / 16QAM / 64QAM                                                                                                                                                                                                                                                                                                      |                                                               |                 |             |                  |             |                  |             |                  |             |
| LTE Voice / Data requirements                                           |                   |             | Voice and Data                                                                                                                                                                                                                                                                                                            |                                                               |                 |             |                  |             |                  |             |                  |             |
| 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         |                  |             |
|                                                                         |                   |             | ≥ 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, when operating in hotspot / Body-wron and extremity mode that LTE B2 / B4 / B7 / B66 power reduction applied to satisfy SAR compliance.                                                                                                                                                                              |                                                               |                 |             |                  |             |                  |             |                  |             |
| LTE Carrier Aggregation Combinations                                    |                   |             | Inter-Band and Intra-Band possible combinations and the detail power measurement please referred to section 12.                                                                                                                                                                                                           |                                                               |                 |             |                  |             |                  |             |                  |             |
| LTE Carrier Aggregation Additional Information                          |                   |             | 2This device supports maximum of 2 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 7  |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |
|             | 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           | 20775             | 2502.5      | 20800            | 2505        | 20825            | 2507.5      | 20850            | 2510        |                  |             |                  |             |
| M           | 21100             | 2535        | 21100            | 2535        | 21100            | 2535        | 21100            | 2535        |                  |             |                  |             |
| H           | 21425             | 2567.5      | 21400            | 2565        | 21375            | 2562.5      | 21350            | 2560        |                  |             |                  |             |
| LTE Band 12 |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |
|             | 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           | 23017             | 699.7       | 23025            | 700.5       | 23035            | 701.5       | 23060            | 704         |                  |             |                  |             |
| M           | 23095             | 707.5       | 23095            | 707.5       | 23095            | 707.5       | 23095            | 707.5       |                  |             |                  |             |
| H           | 23173             | 715.3       | 23165            | 714.5       | 23155            | 713.5       | 23130            | 711         |                  |             |                  |             |
| LTE Band 17 |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |
|             | Bandwidth 5 MHz   |             |                  |             | Bandwidth 10 MHz |             |                  |             |                  |             |                  |             |
|             | Channel #         |             | Freq.(MHz)       |             | Channel #        |             | Freq. (MHz)      |             |                  |             |                  |             |
| L           | 23755             |             | 706.5            |             | 23780            |             | 709              |             |                  |             |                  |             |
| M           | 23790             |             | 710              |             | 23790            |             | 710              |             |                  |             |                  |             |
| H           | 23825             |             | 713.5            |             | 23800            |             | 711              |             |                  |             |                  |             |
| 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        |

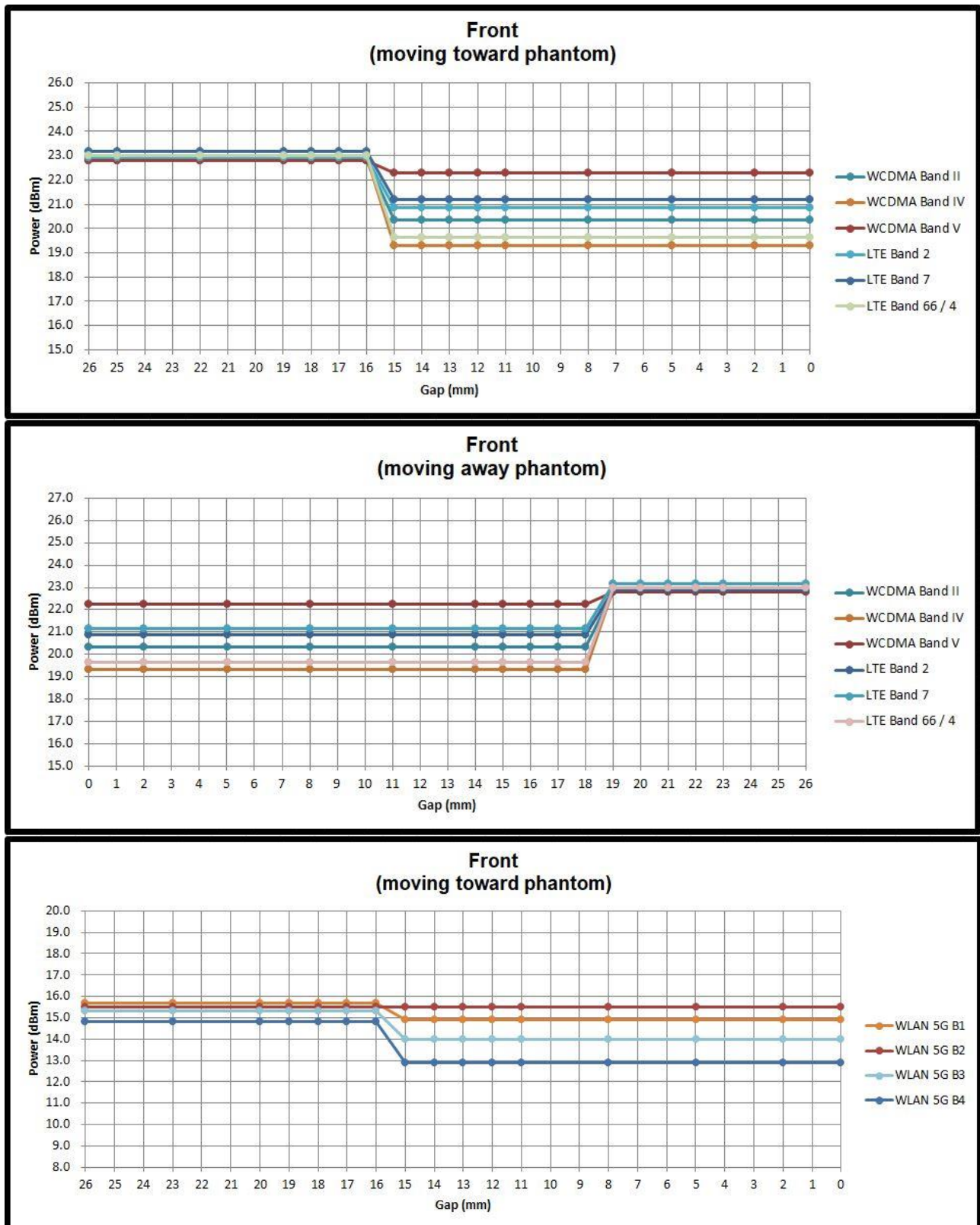
## 4. Proximity Sensor Triggering Test

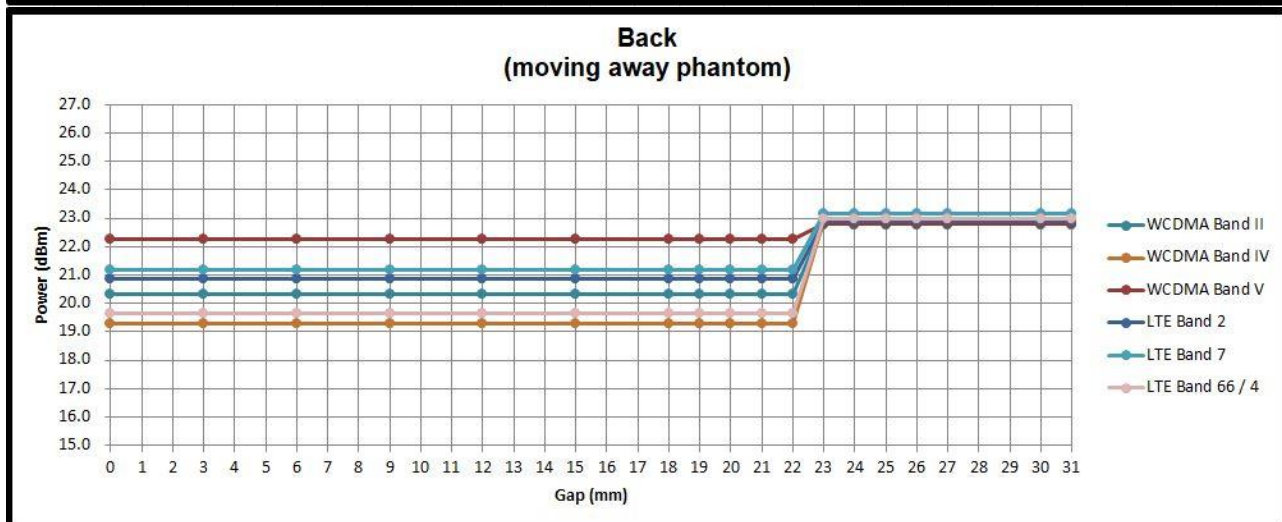
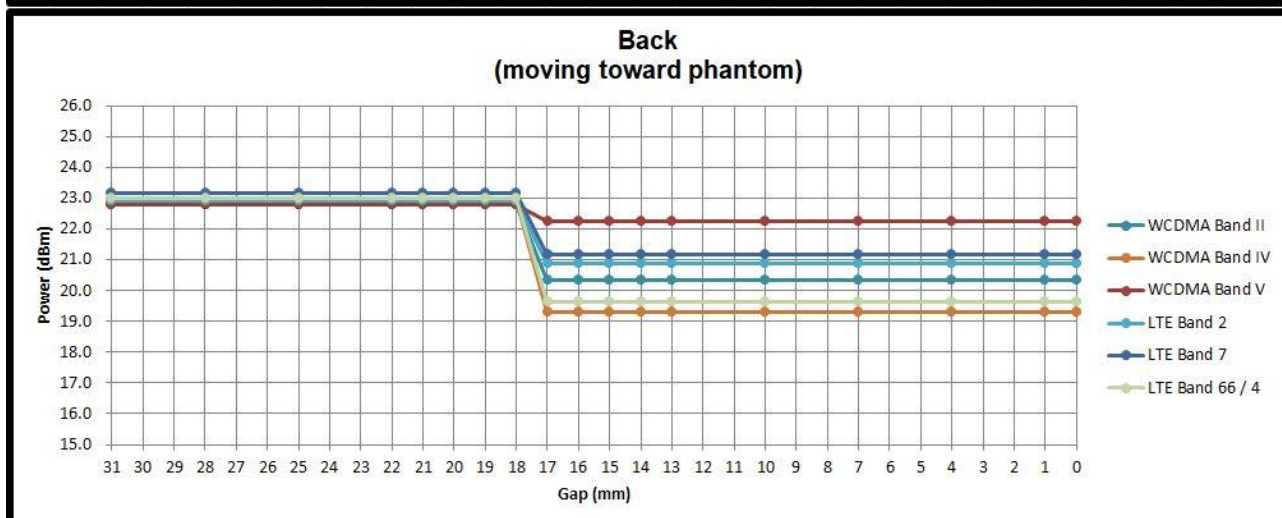
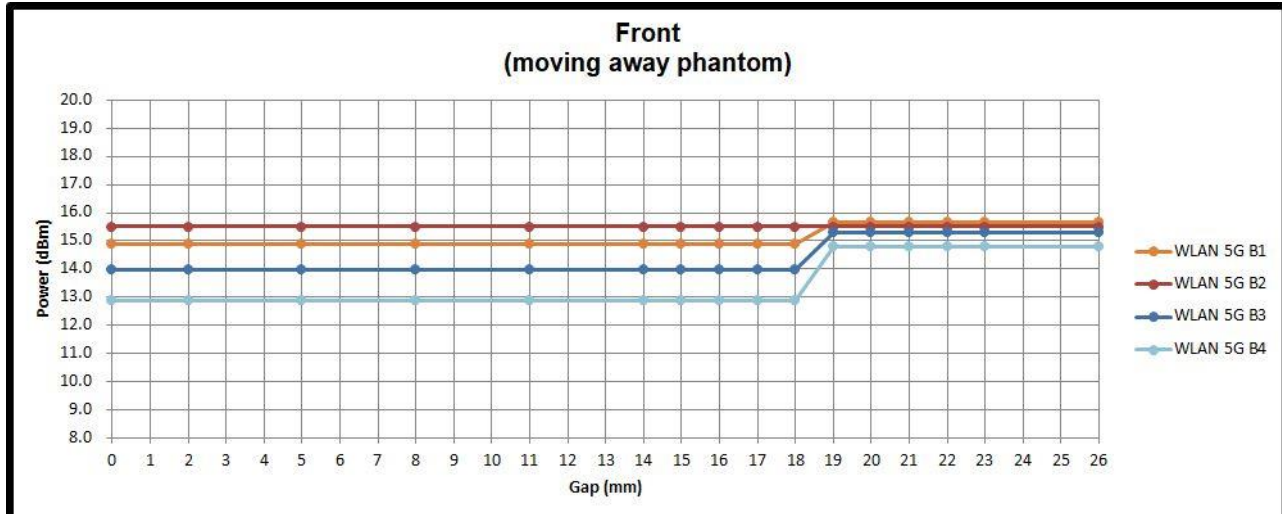
### <Proximity Sensor Triggering Distance>:

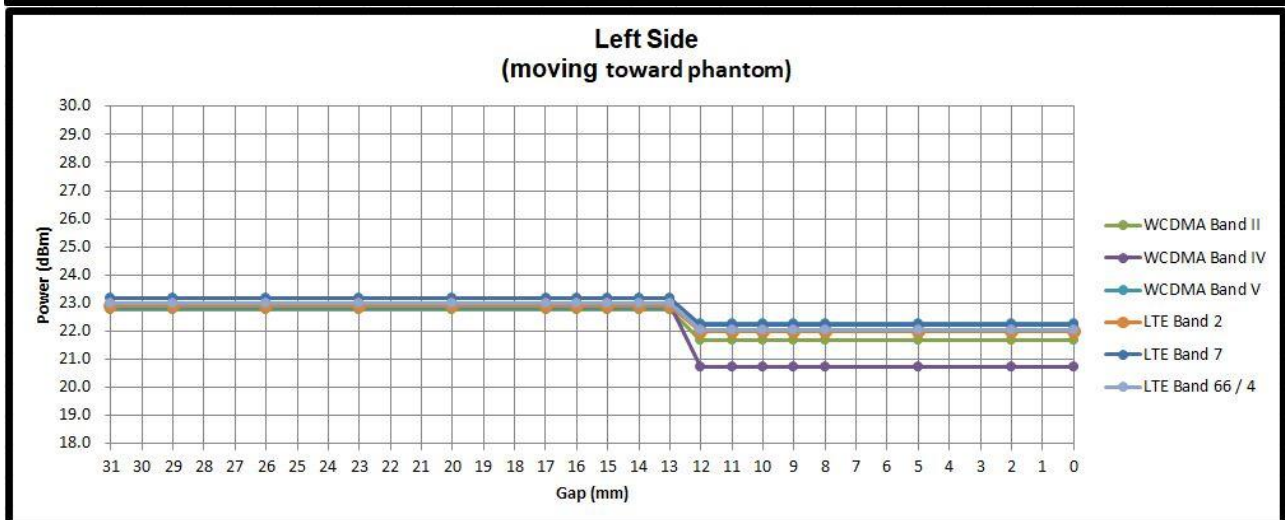
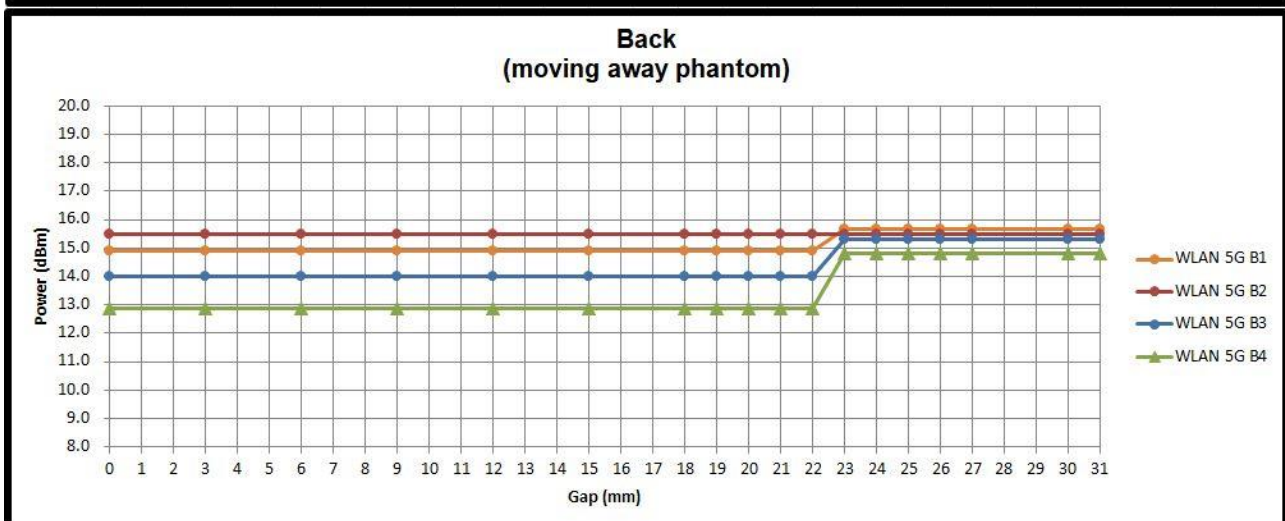
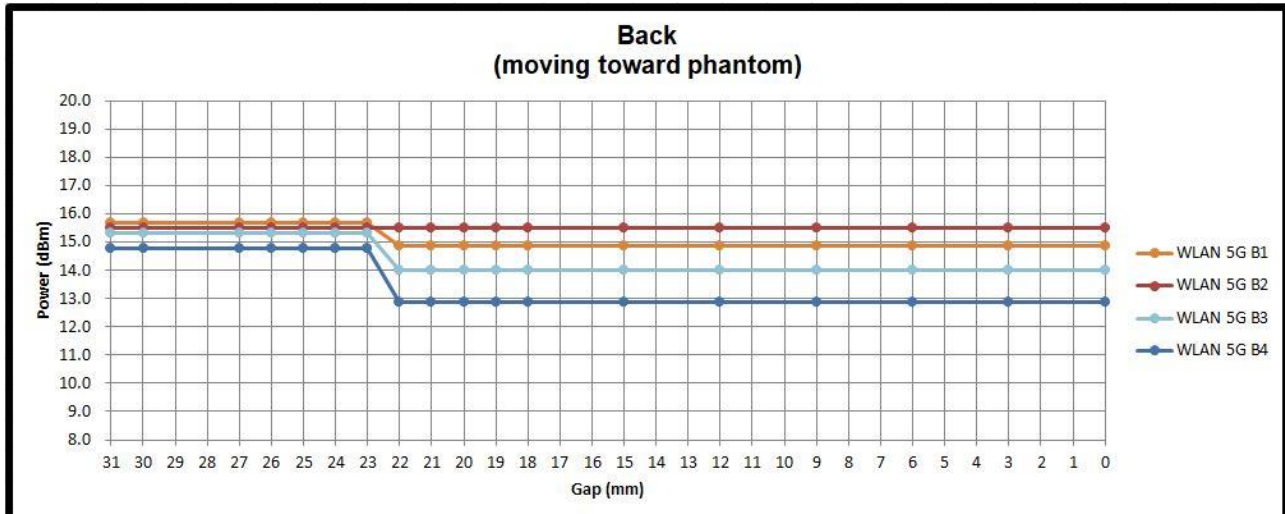
1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (2600MHz) and lowest (750MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensors placed coincident with antenna elements at the top and bottom ends of the phone are utilized to determine when the device comes in proximity of the user's body at the front or back of the device.
3. The output power will reduce to body worn power level when top and bottom sensor pad be detected.
4. The sensors used to detect the proximity of the user's body (Body-Worn condition) at the front or back surface of the device use a detection threshold distance. The data shown in the sections below shows the distance(s).
5. The device additionally employs proximity sensors that detect the presence of tissue near the currently active transmit antenna (if that antenna may require reduced power relative the Default power table in order to meet extremity SAR limits). The control logic is such that, if the Body-Worn, At-Head or WiFi Hotspot conditions are not detected, but tissue (as a finger or hand, for example) is detected near the transmitting antenna, the Handheld Reduced power table will be applied
6. When the sensor is active, the device will reduced maximum output powers on the GSM1900, WCDMA B2 / B4 / B5 and LTE B2 / B4 / B7 / B66 transmitter.



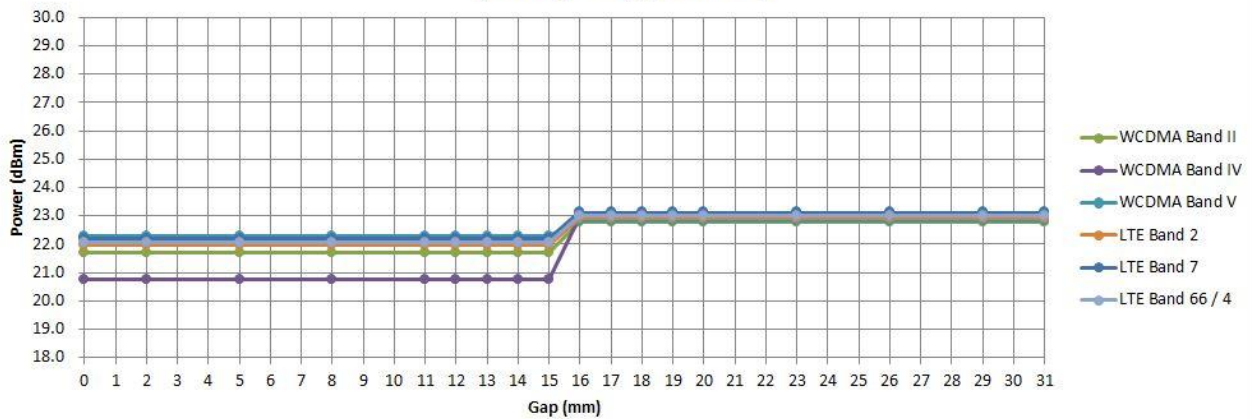
| Proximity Sensor Trigger Distance (mm) |                |             |                |             |                |             |                |             |
|----------------------------------------|----------------|-------------|----------------|-------------|----------------|-------------|----------------|-------------|
| Position                               | Front          |             | Back           |             | Bottom Side    |             | Left Side      |             |
| Position                               | Moving towards | Moving away | Moving towards | Moving away | Moving towards | Moving away | Moving towards | Moving away |
| Minimum                                | 15             | 18          | 17             | 22          | 12             | 15          | 12             | 15          |



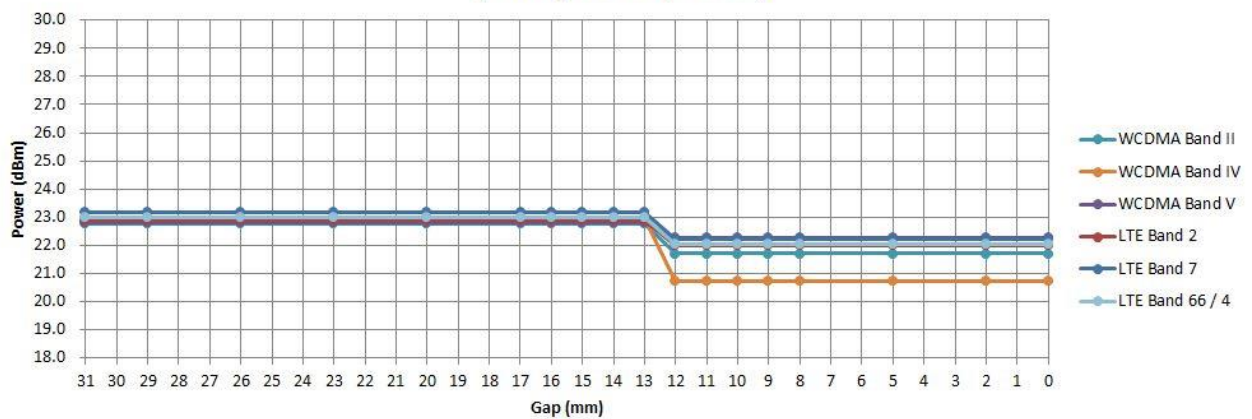




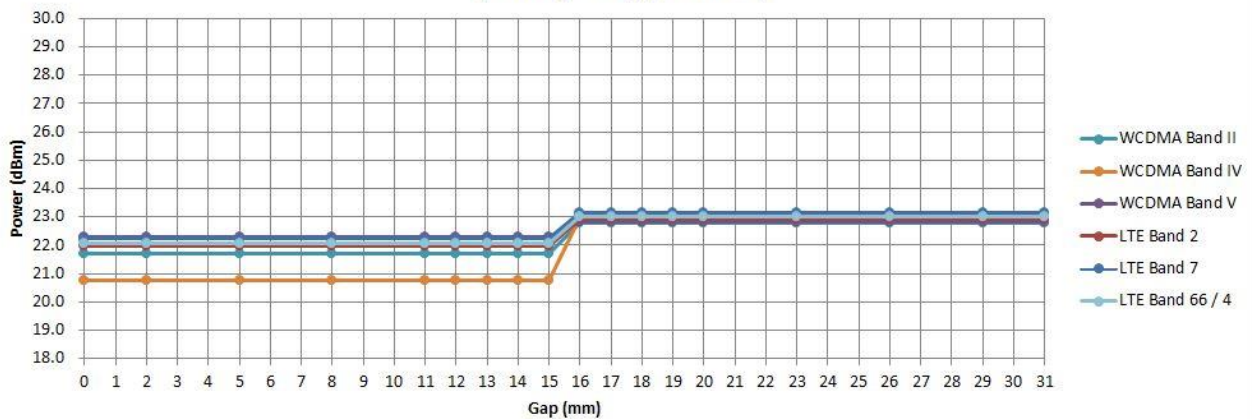
### Left Side (moving away phantom)



### Bottom Side (moving toward phantom)



### Bottom Side (moving away phantom)



## **5. RF Exposure Limits**

### **5.1 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.

### **5.2 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.

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

### **6.1 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.

### **6.2 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 ( $\rho$ ). The equation description is as below:

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

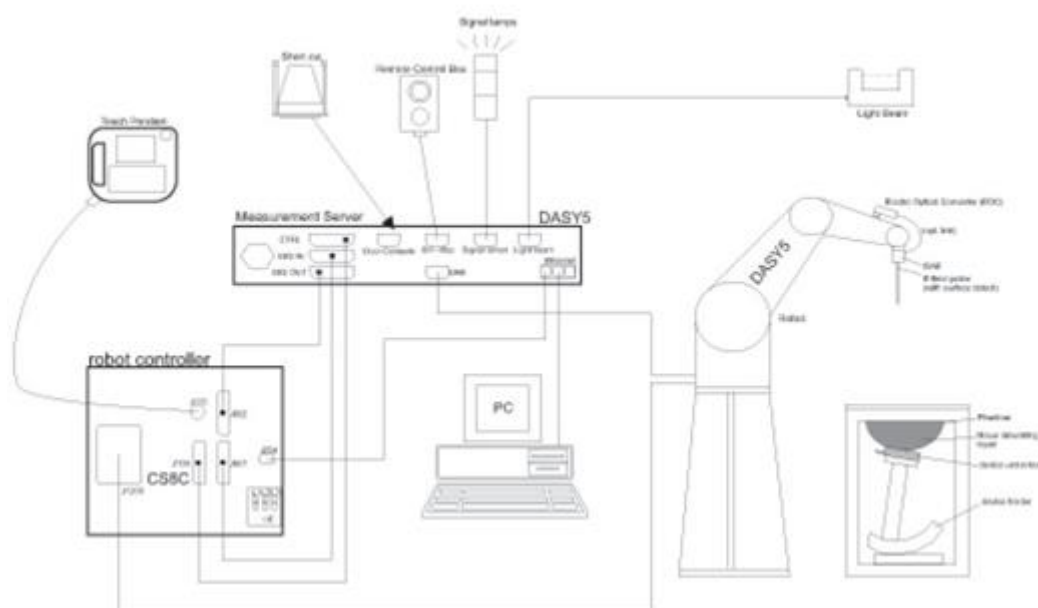
SAR is expressed in units of Watts per kilogram (W/kg)

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

Where:  $\sigma$  is the conductivity of the tissue,  $\rho$  is the mass density of the tissue and E is the RMS electrical field strength.

## 7. 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.

## 7.1 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                      |                                                                                     |

## 7.2 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**

### **7.3 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.

## **7.4 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

## **8. 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

### **8.1 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

## **8.2 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.

## **8.3 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. |                                                        |

### 8.4 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. |                                           |                                                                                             |                                                        |                                                                                     |

### 8.5 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.

### 8.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASYS 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.



## 9. Test Equipment List

| Manufacturer  | Name of Equipment               | Type/Model      | Serial Number | Calibration   |               |
|---------------|---------------------------------|-----------------|---------------|---------------|---------------|
|               |                                 |                 |               | Last Cal.     | Due Date      |
| SPEAG         | 750MHz System Validation Kit    | D750V3          | 1107          | Mar. 08, 2019 | Mar. 07, 2020 |
| SPEAG         | 835MHz System Validation Kit    | D835V2          | 4d167         | Mar. 08, 2019 | Mar. 07, 2020 |
| SPEAG         | 1750MHz System Validation Kit   | D1750V2         | 1112          | Mar. 07, 2019 | Mar. 06, 2020 |
| SPEAG         | 1900MHz System Validation Kit   | D1900V2         | 5d041         | Sep. 11, 2018 | Sep. 10, 2019 |
| SPEAG         | 2450MHz System Validation Kit   | D2450V2         | 736           | Aug. 31, 2018 | Aug. 30, 2019 |
| SPEAG         | 2600MHz System Validation Kit   | D2600V2         | 1078          | Mar. 06, 2019 | Mar. 05, 2020 |
| SPEAG         | 5GHz System Validation Kit      | D5GHzV2         | 1006          | Sep. 27, 2018 | Sep. 26, 2019 |
| SPEAG         | Data Acquisition Electronics    | DAE3            | 360           | Oct. 29, 2018 | Oct. 28, 2019 |
| SPEAG         | Data Acquisition Electronics    | DAE4            | 1399          | Nov. 16, 2018 | Nov. 15, 2019 |
| SPEAG         | Dosimetric E-Field Probe        | ES3DV3          | 3169          | May. 24, 2019 | May. 23, 2020 |
| SPEAG         | Dosimetric E-Field Probe        | EX3DV4          | 3642          | Apr. 29, 2019 | Apr. 28, 2020 |
| SPEAG         | Dosimetric E-Field Probe        | EX3DV4          | 3931          | Sep. 27, 2018 | Sep. 26, 2019 |
| TESTO         | Hygro meter                     | 608-H1          | 34913631      | Aug. 27, 2018 | Aug. 26, 2019 |
| TESTO         | Hygro meter                     | 608-H1          | 34852481      | Sep. 27, 2018 | Sep. 26, 2019 |
| RCPTWN        | Thermometer                     | HTC-1           | TM685-1       | Nov. 12, 2018 | Nov. 11, 2019 |
| Anritsu       | Radio Communication Analyzer    | MT8821C         | 6201341950    | Apr. 21, 2019 | Apr. 20, 2020 |
| Agilent       | Wireless Communication Test Set | E5515C          | MY50266977    | May. 27, 2019 | May. 26, 2020 |
| R&S           | BT Base Station                 | CBT32           | 100522        | Mar. 18, 2019 | Mar. 17, 2020 |
| SPEAG         | Device Holder                   | N/A             | N/A           | N/A           | N/A           |
| R&S           | Signal Generator                | SMA100A         | 101091        | Jul. 03, 2019 | Jul. 02, 2020 |
| Agilent       | ENA Network Analyzer            | E5071C          | MY46104758    | Sep. 19, 2018 | Sep. 18, 2019 |
| SPEAG         | Dielectric Probe Kit            | DAK-3.5         | 1126          | Sep. 19, 2018 | Sep. 18, 2019 |
| LINE SEIKI    | Digital Thermometer             | DTM3000-spezial | 2942          | Dec. 07, 2018 | Dec. 06, 2019 |
| Anritsu       | Power Meter                     | ML2495A         | 1218006       | Oct. 08, 2018 | Oct. 07, 2019 |
| Anritsu       | Power Sensor                    | MA2411B         | 1207363       | Oct. 08, 2018 | Oct. 07, 2019 |
| Anritsu       | Power Meter                     | ML2495A         | 1419002       | May. 29, 2019 | May. 28, 2020 |
| Anritsu       | Power Sensor                    | MA2411B         | 1339124       | May. 29, 2019 | May. 28, 2020 |
| Agilent       | Spectrum Analyzer               | E4408B          | MY44211028    | Aug. 28, 2018 | Aug. 27, 2019 |
| Anritsu       | Spectrum Analyzer               | MS2830A         | 6201396378    | Jun. 27, 2019 | Jun. 26, 2020 |
| Mini-Circuits | Power Amplifier                 | ZVE-8G+         | 070501814     | Oct. 08, 2018 | Oct. 07, 2019 |
| Mini-Circuits | Power Amplifier                 | ZHL-42W+        | 715701915     | May. 10, 2019 | May. 09, 2020 |
| 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        |               |

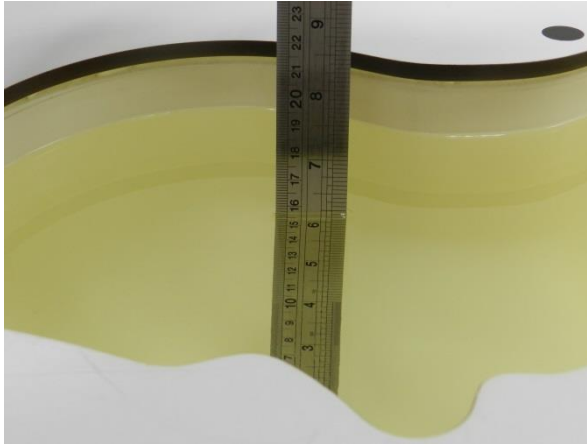
### General Note:

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.

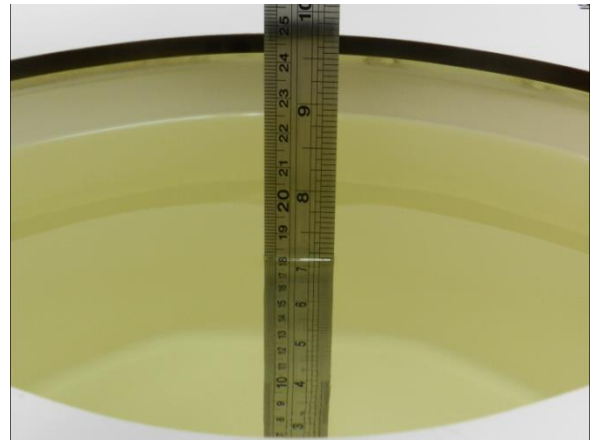
## **10. System Verification**

### **10.1 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

## 10.2 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 ( $\epsilon_r$ ) |
|------------------|-----------|-----------|---------------|----------|---------------|----------|---------------------------|-------------------------------|
| 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                          |

### Simulating Liquid for 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>

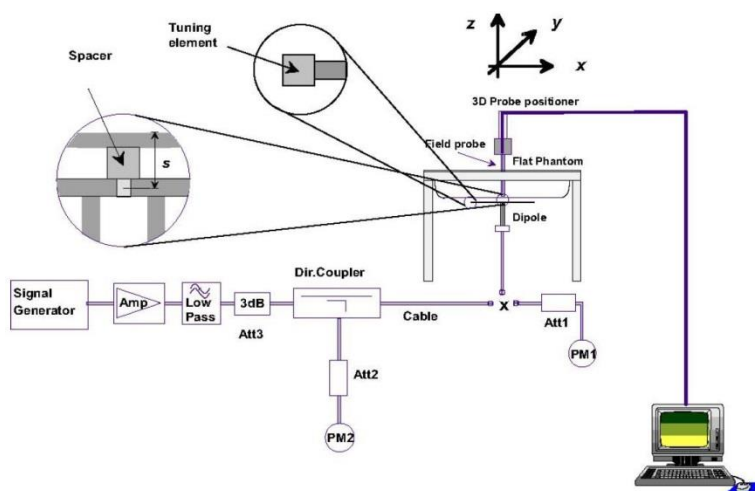
| Frequency (MHz) | Liquid Temp. (°C) | Conductivity ( $\sigma$ ) | Permittivity ( $\epsilon_r$ ) | Conductivity Target ( $\sigma$ ) | Permittivity Target ( $\epsilon_r$ ) | Delta ( $\sigma$ ) (%) | Delta ( $\epsilon_r$ ) (%) | Limit (%) | Date      |
|-----------------|-------------------|---------------------------|-------------------------------|----------------------------------|--------------------------------------|------------------------|----------------------------|-----------|-----------|
| 750             | 22.6              | 0.893                     | 40.490                        | 0.89                             | 41.90                                | 0.34                   | -3.37                      | ±5        | 2019/7/31 |
| 750             | 22.6              | 0.892                     | 43.159                        | 0.89                             | 41.90                                | 0.22                   | 3.00                       | ±5        | 2019/8/11 |
| 835             | 22.3              | 0.894                     | 41.840                        | 0.90                             | 41.50                                | -0.67                  | 0.82                       | ±5        | 2019/8/1  |
| 835             | 22.4              | 0.894                     | 41.616                        | 0.90                             | 41.50                                | -0.67                  | 0.28                       | ±5        | 2019/8/11 |
| 1750            | 22.7              | 1.388                     | 40.086                        | 1.37                             | 40.10                                | 1.31                   | -0.03                      | ±5        | 2019/8/2  |
| 1750            | 22.3              | 1.347                     | 40.840                        | 1.37                             | 40.10                                | -1.68                  | 1.85                       | ±5        | 2019/8/9  |
| 1750            | 22.3              | 1.371                     | 41.630                        | 1.37                             | 40.10                                | 0.07                   | 3.82                       | ±5        | 2019/8/10 |
| 1900            | 22.6              | 1.414                     | 38.501                        | 1.40                             | 40.00                                | 1.00                   | -3.75                      | ±5        | 2019/8/3  |
| 1900            | 22.6              | 1.418                     | 38.831                        | 1.40                             | 40.00                                | 1.29                   | -2.92                      | ±5        | 2019/8/4  |
| 1900            | 22.3              | 1.385                     | 40.383                        | 1.40                             | 40.00                                | -1.07                  | 0.96                       | ±5        | 2019/8/9  |
| 1900            | 22.5              | 1.427                     | 40.973                        | 1.40                             | 40.00                                | 1.93                   | 2.43                       | ±5        | 2019/8/10 |
| 2450            | 22.5              | 1.803                     | 39.649                        | 1.80                             | 39.20                                | 0.17                   | 1.15                       | ±5        | 2019/7/31 |
| 2450            | 22.8              | 1.794                     | 39.865                        | 1.80                             | 39.20                                | -0.33                  | 1.70                       | ±5        | 2019/8/6  |
| 2600            | 22.6              | 1.967                     | 38.722                        | 1.96                             | 39.00                                | 0.36                   | -0.71                      | ±5        | 2019/8/5  |
| 2600            | 22.3              | 1.973                     | 38.349                        | 1.96                             | 39.00                                | 0.66                   | -1.67                      | ±5        | 2019/8/10 |
| 5250            | 22.5              | 4.711                     | 36.053                        | 4.71                             | 35.95                                | 0.02                   | 0.29                       | ±5        | 2019/8/7  |
| 5250            | 22.4              | 4.721                     | 36.625                        | 4.71                             | 35.95                                | 0.23                   | 1.88                       | ±5        | 2019/8/8  |
| 5250            | 22.3              | 4.573                     | 37.298                        | 4.71                             | 35.95                                | -2.91                  | 3.75                       | ±5        | 2019/8/14 |
| 5600            | 22.5              | 5.071                     | 35.607                        | 5.07                             | 35.50                                | 0.02                   | 0.30                       | ±5        | 2019/8/7  |
| 5600            | 22.4              | 5.083                     | 36.149                        | 5.07                             | 35.50                                | 0.26                   | 1.83                       | ±5        | 2019/8/8  |
| 5600            | 22.3              | 4.924                     | 36.825                        | 5.07                             | 35.50                                | -2.88                  | 3.73                       | ±5        | 2019/8/14 |
| 5750            | 22.5              | 5.220                     | 35.456                        | 5.22                             | 35.35                                | 0.00                   | 0.30                       | ±5        | 2019/8/7  |
| 5750            | 22.4              | 5.246                     | 35.932                        | 5.22                             | 35.35                                | 0.50                   | 1.65                       | ±5        | 2019/8/8  |
| 5750            | 22.3              | 5.071                     | 36.577                        | 5.22                             | 35.35                                | -2.85                  | 3.47                       | ±5        | 2019/8/14 |

### 10.3 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) | 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 (%) |
|-----------|-----------------|------------------|-------------------|-----------------|-------------|------------------------|------------------------|--------------------------|---------------|
| 2019/7/31 | 750             | 250              | D750V3-1107       | ES3DV3 - SN3169 | DAE4 Sn1399 | 2.00                   | 8.32                   | 8                        | -3.85         |
| 2019/8/11 | 750             | 250              | D750V3-1107       | EX3DV4 - SN3931 | DAE4 Sn1399 | 2.15                   | 8.32                   | 8.6                      | 3.37          |
| 2019/8/1  | 835             | 250              | D835V2-4d167      | ES3DV3 - SN3169 | DAE4 Sn1399 | 2.29                   | 9.50                   | 9.16                     | -3.58         |
| 2019/8/11 | 835             | 250              | D835V2-4d167      | EX3DV4 - SN3931 | DAE4 Sn1399 | 2.43                   | 9.50                   | 9.72                     | 2.32          |
| 2019/8/2  | 1750            | 250              | D1750V2-1112      | ES3DV3 - SN3169 | DAE4 Sn1399 | 9.34                   | 36.70                  | 37.36                    | 1.80          |
| 2019/8/9  | 1750            | 250              | D1750V2-1112      | EX3DV4 - SN3931 | DAE4 Sn1399 | 9.42                   | 36.70                  | 37.68                    | 2.67          |
| 2019/8/10 | 1750            | 250              | D1750V2-1112      | EX3DV4 - SN3931 | DAE4 Sn1399 | 9.60                   | 36.70                  | 38.4                     | 4.63          |
| 2019/8/3  | 1900            | 250              | D1900V2-5d041     | ES3DV3 - SN3169 | DAE4 Sn1399 | 9.98                   | 40.20                  | 39.92                    | -0.70         |
| 2019/8/4  | 1900            | 250              | D1900V2-5d041     | ES3DV3 - SN3169 | DAE4 Sn1399 | 10.10                  | 40.20                  | 40.4                     | 0.50          |
| 2019/8/9  | 1900            | 250              | D1900V2-5d041     | EX3DV4 - SN3931 | DAE4 Sn1399 | 10.50                  | 40.20                  | 42                       | 4.48          |
| 2019/8/10 | 1900            | 250              | D1900V2-5d041     | EX3DV4 - SN3931 | DAE4 Sn1399 | 11.00                  | 40.20                  | 44                       | 9.45          |
| 2019/7/31 | 2450            | 250              | D2450V2-736       | EX3DV4 - SN3642 | DAE3 Sn360  | 13.50                  | 52.70                  | 54                       | 2.47          |
| 2019/8/6  | 2450            | 250              | D2450V2-736       | EX3DV4 - SN3931 | DAE4 Sn1399 | 13.80                  | 52.70                  | 55.2                     | 4.74          |
| 2019/8/5  | 2600            | 250              | D2600V2-1078      | ES3DV3 - SN3169 | DAE4 Sn1399 | 13.60                  | 57.60                  | 54.4                     | -5.56         |
| 2019/8/10 | 2600            | 250              | D2600V2-1078      | EX3DV4 - SN3931 | DAE4 Sn1399 | 14.50                  | 57.60                  | 58                       | 0.69          |
| 2019/8/7  | 5250            | 100              | D5GHzV2-1006-5250 | EX3DV4 - SN3931 | DAE4 Sn1399 | 8.13                   | 80.70                  | 81.3                     | 0.74          |
| 2019/8/8  | 5250            | 100              | D5GHzV2-1006-5250 | EX3DV4 - SN3931 | DAE4 Sn1399 | 7.95                   | 80.70                  | 79.5                     | -1.49         |
| 2019/8/14 | 5250            | 100              | D5GHzV2-1006-5250 | EX3DV4 - SN3931 | DAE4 Sn1399 | 7.89                   | 80.70                  | 78.9                     | -2.23         |
| 2019/8/7  | 5600            | 100              | D5GHzV2-1006-5600 | EX3DV4 - SN3931 | DAE4 Sn1399 | 8.40                   | 83.30                  | 84                       | 0.84          |
| 2019/8/8  | 5600            | 100              | D5GHzV2-1006-5600 | EX3DV4 - SN3931 | DAE4 Sn1399 | 8.75                   | 83.30                  | 87.5                     | 5.04          |
| 2019/8/14 | 5600            | 100              | D5GHzV2-1006-5600 | EX3DV4 - SN3931 | DAE4 Sn1399 | 8.83                   | 83.30                  | 88.3                     | 6.00          |
| 2019/8/7  | 5750            | 100              | D5GHzV2-1006-5750 | EX3DV4 - SN3931 | DAE4 Sn1399 | 8.38                   | 80.40                  | 83.8                     | 4.23          |
| 2019/8/8  | 5750            | 100              | D5GHzV2-1006-5750 | EX3DV4 - SN3931 | DAE4 Sn1399 | 8.55                   | 80.40                  | 85.5                     | 6.34          |
| 2019/8/14 | 5750            | 100              | D5GHzV2-1006-5750 | EX3DV4 - SN3931 | DAE4 Sn1399 | 8.15                   | 80.40                  | 81.5                     | 1.37          |

| Date      | Frequency (MHz) | 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 (%) |
|-----------|-----------------|------------------|-------------------|-----------------|-------------|-------------------------|-------------------------|---------------------------|---------------|
| 2019/8/1  | 835             | 250              | D835V2-4d167      | ES3DV3 - SN3169 | DAE4 Sn1399 | 1.51                    | 6.25                    | 6.04                      | -3.36         |
| 2019/8/2  | 1750            | 250              | D1750V2-1112      | ES3DV3 - SN3169 | DAE4 Sn1399 | 4.99                    | 19.40                   | 19.96                     | 2.89          |
| 2019/8/4  | 1900            | 250              | D1900V2-5d041     | ES3DV3 - SN3169 | DAE4 Sn1399 | 5.29                    | 21.20                   | 21.16                     | -0.19         |
| 2019/8/10 | 1900            | 250              | D1900V2-5d041     | EX3DV4 - SN3931 | DAE4 Sn1399 | 5.73                    | 21.20                   | 22.92                     | 8.11          |
| 2019/8/5  | 2600            | 250              | D2600V2-1078      | ES3DV3 - SN3169 | DAE4 Sn1399 | 6.14                    | 25.50                   | 24.56                     | -3.69         |
| 2019/8/8  | 5250            | 100              | D5GHzV2-1006-5250 | EX3DV4 - SN3931 | DAE4 Sn1399 | 2.24                    | 23.20                   | 22.4                      | -3.45         |
| 2019/8/8  | 5600            | 100              | D5GHzV2-1006-5600 | EX3DV4 - SN3931 | DAE4 Sn1399 | 2.47                    | 23.80                   | 24.7                      | 3.78          |
| 2019/8/8  | 5750            | 100              | D5GHzV2-1006-5750 | EX3DV4 - SN3931 | DAE4 Sn1399 | 2.38                    | 22.90                   | 23.8                      | 3.93          |

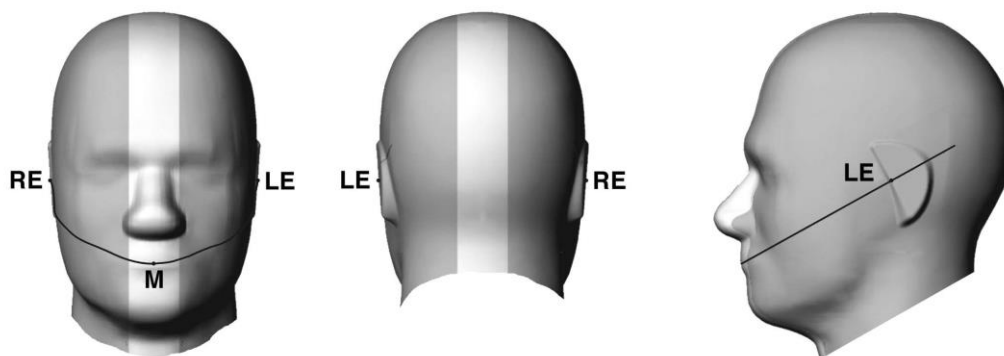

**Fig 8.3.1 System Performance Check Setup**

**Fig 8.3.2 Setup Photo**

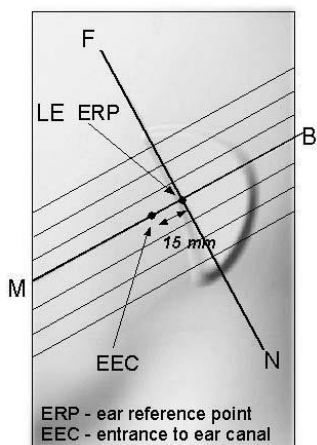
## **11. RF Exposure Positions**

### **11.1 Ear and handset reference point**

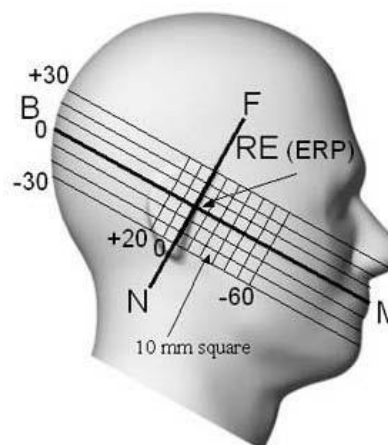
Figure 9.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled "M," the left ear reference point (ERP) is marked "LE," and the right ERP is marked "RE." Each ERP is 15 mm along the B-M (back-mouth) line behind the entrance-to-ear-canal (EEC) point, 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**

## 11.2 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.

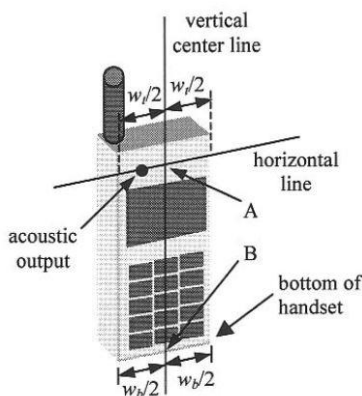


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case"

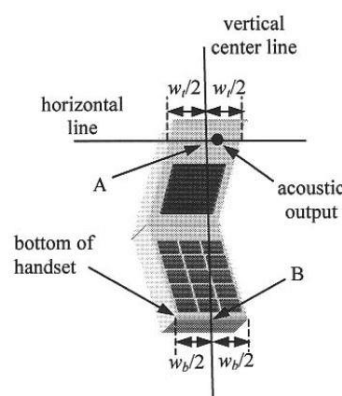


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

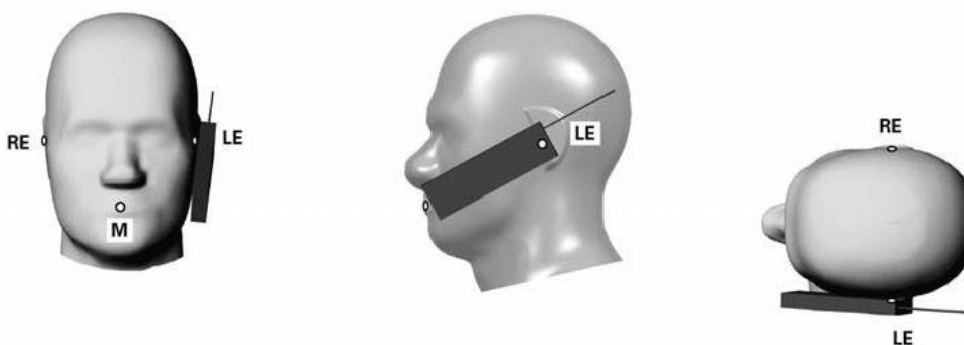
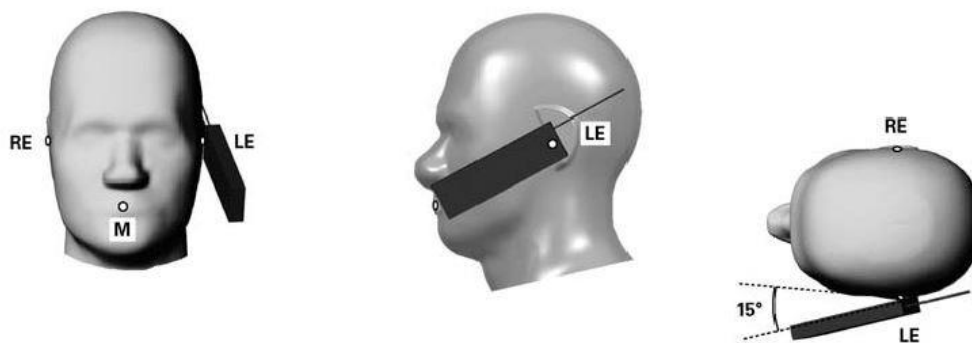


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

### **11.3 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

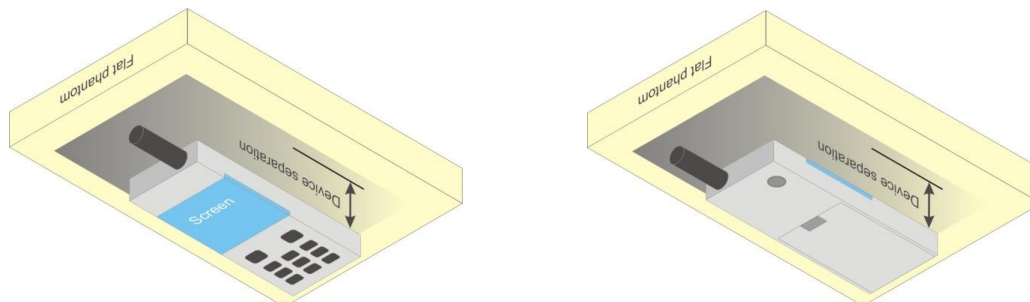


**Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.**

### **11.4 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-chip 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**

### **11.5 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 extremity 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 extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

### **11.6 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.

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

### **<GSM Conducted Power>**

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS (2Tx slots) for GSM850/GSM1900 is considered as the primary mode.
3. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq \frac{1}{4}$  dB higher than the primary mode, SAR measurement is not required for the secondary mode

### **<Default / Near-Body / Product Specific Power Mode>**

| GSM850          | Burst Average Power (dBm) |       |       | Tune-up Limit (dBm) | Frame-Average Power (dBm) |       |       | Tune-up Limit (dBm) |
|-----------------|---------------------------|-------|-------|---------------------|---------------------------|-------|-------|---------------------|
| TX Channel      | 128                       | 189   | 251   |                     | 128                       | 189   | 251   |                     |
| Frequency (MHz) | 824.2                     | 836.4 | 848.8 |                     | 824.2                     | 836.4 | 848.8 |                     |
| GSM 1 Tx slot   | 33.02                     | 32.76 | 32.79 | 33.50               | 24.02                     | 23.76 | 23.79 | 24.50               |
| GPRS 1 Tx slot  | 33.01                     | 32.75 | 32.78 | 33.50               | 24.01                     | 23.75 | 23.78 | 24.50               |
| GPRS 2 Tx slots | 31.02                     | 30.67 | 30.72 | 31.50               | 25.02                     | 24.67 | 24.72 | 25.50               |
| GPRS 3 Tx slots | 28.57                     | 28.55 | 28.32 | 29.00               | 24.31                     | 24.29 | 24.06 | 24.74               |
| GPRS 4 Tx slots | 26.20                     | 26.24 | 26.32 | 27.50               | 23.20                     | 23.24 | 23.32 | 24.50               |
| EDGE 1 Tx slot  | 26.58                     | 26.38 | 26.20 | 27.50               | 17.58                     | 17.38 | 17.20 | 18.50               |
| EDGE 2 Tx slots | 24.45                     | 24.30 | 24.24 | 25.50               | 18.45                     | 18.30 | 18.24 | 19.50               |
| EDGE 3 Tx slots | 22.32                     | 22.18 | 22.12 | 23.50               | 18.06                     | 17.92 | 17.86 | 19.24               |
| EDGE 4 Tx slots | 21.01                     | 21.02 | 20.80 | 22.00               | 18.01                     | 18.02 | 17.80 | 19.00               |

| GSM1900         | Burst Average Power (dBm) |       |        | Tune-up Limit (dBm) | Frame-Average Power (dBm) |       |        | Tune-up Limit (dBm) |
|-----------------|---------------------------|-------|--------|---------------------|---------------------------|-------|--------|---------------------|
| TX Channel      | 512                       | 661   | 810    |                     | 512                       | 661   | 810    |                     |
| Frequency (MHz) | 1850.2                    | 1880  | 1909.8 |                     | 1850.2                    | 1880  | 1909.8 |                     |
| GSM 1 Tx slot   | 29.96                     | 29.85 | 29.81  | 30.50               | 20.96                     | 20.85 | 20.81  | 21.50               |
| GPRS 1 Tx slot  | 29.95                     | 29.83 | 29.80  | 30.50               | 20.95                     | 20.83 | 20.80  | 21.50               |
| GPRS 2 Tx slots | 28.05                     | 27.91 | 27.88  | 28.50               | 22.05                     | 21.91 | 21.88  | 22.50               |
| GPRS 3 Tx slots | 25.81                     | 25.73 | 25.66  | 26.50               | 21.55                     | 21.47 | 21.40  | 22.24               |
| GPRS 4 Tx slots | 23.59                     | 23.54 | 23.43  | 24.50               | 20.59                     | 20.54 | 20.43  | 21.50               |
| EDGE 1 Tx slot  | 26.36                     | 26.44 | 26.33  | 27.00               | 17.36                     | 17.44 | 17.33  | 18.00               |
| EDGE 2 Tx slots | 24.39                     | 24.40 | 24.25  | 25.00               | 18.39                     | 18.40 | 18.25  | 19.00               |
| EDGE 3 Tx slots | 22.15                     | 22.20 | 22.12  | 23.00               | 17.89                     | 17.94 | 17.86  | 18.74               |
| EDGE 4 Tx slots | 19.68                     | 19.72 | 19.59  | 21.00               | 16.68                     | 16.72 | 16.59  | 18.00               |

**<Hotspot Power Mode>**

| GSM850          | Burst Average Power (dBm) |       |       | Tune-up<br>Limit<br>(dBm) | Frame-Average Power (dBm) |       |       | Tune-up<br>Limit<br>(dBm) |
|-----------------|---------------------------|-------|-------|---------------------------|---------------------------|-------|-------|---------------------------|
| TX Channel      | 128                       | 189   | 251   |                           | 128                       | 189   | 251   |                           |
| Frequency (MHz) | 824.2                     | 836.4 | 848.8 |                           | 824.2                     | 836.4 | 848.8 |                           |
| GSM 1 Tx slot   | 33.02                     | 32.76 | 32.79 | 33.50                     | 24.02                     | 23.76 | 23.79 | 24.50                     |
| GPRS 1 Tx slot  | 33.01                     | 32.75 | 32.78 | 33.50                     | 24.01                     | 23.75 | 23.78 | 24.50                     |
| GPRS 2 Tx slots | 31.02                     | 30.67 | 30.72 | 31.50                     | 25.02                     | 24.67 | 24.72 | 25.50                     |
| GPRS 3 Tx slots | 28.57                     | 28.55 | 28.32 | 29.00                     | 24.31                     | 24.29 | 24.06 | 24.74                     |
| GPRS 4 Tx slots | 26.20                     | 26.24 | 26.32 | 27.50                     | 23.20                     | 23.24 | 23.32 | 24.50                     |
| EDGE 1 Tx slot  | 26.58                     | 26.38 | 26.20 | 27.50                     | 17.58                     | 17.38 | 17.20 | 18.50                     |
| EDGE 2 Tx slots | 24.45                     | 24.30 | 24.24 | 25.50                     | 18.45                     | 18.30 | 18.24 | 19.50                     |
| EDGE 3 Tx slots | 22.32                     | 22.18 | 22.12 | 23.50                     | 18.06                     | 17.92 | 17.86 | 19.24                     |
| EDGE 4 Tx slots | 21.01                     | 21.02 | 20.80 | 22.00                     | 18.01                     | 18.02 | 17.80 | 19.00                     |

| GSM1900         | Burst Average Power (dBm) |       |        | Tune-up<br>Limit<br>(dBm) | Frame-Average Power (dBm) |       |        | Tune-up<br>Limit<br>(dBm) |
|-----------------|---------------------------|-------|--------|---------------------------|---------------------------|-------|--------|---------------------------|
| TX Channel      | 512                       | 661   | 810    |                           | 512                       | 661   | 810    |                           |
| Frequency (MHz) | 1850.2                    | 1880  | 1909.8 |                           | 1850.2                    | 1880  | 1909.8 |                           |
| GSM 1 Tx slot   | 28.23                     | 28.03 | 28.00  | 28.50                     | 19.23                     | 19.03 | 19.00  | 19.50                     |
| GPRS 1 Tx slot  | 28.38                     | 28.17 | 28.03  | 28.50                     | 19.38                     | 19.17 | 19.03  | 19.50                     |
| GPRS 2 Tx slots | 25.49                     | 25.18 | 25.13  | 26.00                     | 19.49                     | 19.18 | 19.13  | 20.00                     |
| GPRS 3 Tx slots | 23.41                     | 23.44 | 23.26  | 24.00                     | 19.15                     | 19.18 | 19.00  | 19.74                     |
| GPRS 4 Tx slots | 22.44                     | 22.12 | 22.08  | 22.50                     | 19.44                     | 19.12 | 19.08  | 19.50                     |
| EDGE 1 Tx slot  | 26.36                     | 26.44 | 26.33  | 27.00                     | 17.36                     | 17.44 | 17.33  | 18.00                     |
| EDGE 2 Tx slots | 24.39                     | 24.40 | 24.25  | 25.00                     | 18.39                     | 18.40 | 18.25  | 19.00                     |
| EDGE 3 Tx slots | 22.15                     | 22.20 | 22.12  | 23.00                     | 17.89                     | 17.94 | 17.86  | 18.74                     |
| EDGE 4 Tx slots | 19.68                     | 19.72 | 19.59  | 21.00                     | 16.68                     | 16.72 | 16.59  | 18.00                     |

**<WCDMA Conducted Power>**

1. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
2. The procedures in KDB 941225 D01v03r01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.
3. For DC-HSDPA, the device was configured according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1, with the primary and the secondary serving HS-DSCH Cell enabled during the power measurement.

A summary of these settings are illustrated below:

**HSDPA Setup Configuration:**

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
  - i. Set Gain Factors ( $\beta_c$  and  $\beta_d$ ) and parameters were set according to each
  - ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
  - iii. Set RMC 12.2Kbps + HSDPA mode.
  - iv. Set Cell Power = -86 dBm
  - v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
  - vi. Select HSDPA Uplink Parameters
  - vii. Set Delta ACK, Delta NACK and Delta CQI = 8
  - viii. Set Ack-Nack Repetition Factor to 3
  - ix. Set CQI Feedback Cycle (k) to 4 ms
  - x. Set CQI Repetition Factor to 2
  - xi. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.

**Table C.10.1.4:  $\beta$  values for transmitter characteristics tests with HS-DPCCH**

| Sub-test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | $\beta_c$         | $\beta_d$         | $\beta_d$<br>(SF) | $\beta_c/\beta_d$ | $\beta_{hs}$<br>(Note 1,<br>Note 2) | CM (dB)<br>(Note 3) | MPR (dB)<br>(Note 3) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------------------------|---------------------|----------------------|
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2/15              | 15/15             | 64                | 2/15              | 4/15                                | 0.0                 | 0.0                  |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 12/15<br>(Note 4) | 15/15<br>(Note 4) | 64                | 12/15<br>(Note 4) | 24/15                               | 1.0                 | 0.0                  |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 15/15             | 8/15              | 64                | 15/8              | 30/15                               | 1.5                 | 0.5                  |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 15/15             | 4/15              | 64                | 15/4              | 30/15                               | 1.5                 | 0.5                  |
| <p>Note 1: <math>\Delta_{ACK}</math>, <math>\Delta_{NACK}</math> and <math>\Delta_{CQI} = 30/15</math> with <math>\beta_{hs} = 30/15 * \beta_c</math>.</p> <p>Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, <math>\Delta_{ACK}</math> and <math>\Delta_{NACK} = 30/15</math> with <math>\beta_{hs} = 30/15 * \beta_c</math>, and <math>\Delta_{CQI} = 24/15</math> with <math>\beta_{hs} = 24/15 * \beta_c</math>.</p> <p>Note 3: CM = 1 for <math>\beta_c/\beta_d = 12/15</math>, <math>\beta_{hs}/\beta_c = 24/15</math>. For all other combinations of DPDCCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.</p> <p>Note 4: For subtest 2 the <math>\beta_c/\beta_d</math> ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to <math>\beta_c = 11/15</math> and <math>\beta_d = 15/15</math>.</p> |                   |                   |                   |                   |                                     |                     |                      |

**Setup Configuration**

**HSUPA Setup Configuration:**

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting \* :
  - i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
  - ii. Set the Gain Factors ( $\beta_c$  and  $\beta_d$ ) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
  - iii. Set Cell Power = -86 dBm
  - iv. Set Channel Type = 12.2k + HSPA
  - v. Set UE Target Power
  - vi. Power Ctrl Mode= Alternating bits
  - vii. Set and observe the E-TFCI
  - viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
- d. The transmitted maximum output power was recorded.

**Table C.11.1.3:  $\beta$  values for transmitter characteristics tests with HS-DPCCH and E-DCH**

| Sub-test | $\beta_c$      | $\beta_d$      | $\beta_d$ (SF) | $\beta_c/\beta_d$ | $\beta_{HS}$ (Note 1) | $\beta_{ec}$ | $\beta_{ed}$ (Note 4) (Note 5)               | $\beta_{ed}$ (SF) | $\beta_{ed}$ (Codes) | CM (dB) (Note 2) | MPR (dB) (Note 2) (Note 6) | AG Index (Note 5) | E-TFCI |
|----------|----------------|----------------|----------------|-------------------|-----------------------|--------------|----------------------------------------------|-------------------|----------------------|------------------|----------------------------|-------------------|--------|
| 1        | 11/15 (Note 3) | 15/15 (Note 3) | 64             | 11/15 (Note 3)    | 22/15                 | 209/25       | 1309/225                                     | 4                 | 1                    | 1.0              | 0.0                        | 20                | 75     |
| 2        | 6/15           | 15/15          | 64             | 6/15              | 12/15                 | 12/15        | 94/75                                        | 4                 | 1                    | 3.0              | 2.0                        | 12                | 67     |
| 3        | 15/15          | 9/15           | 64             | 15/9              | 30/15                 | 30/15        | $\beta_{ed1}: 47/15$<br>$\beta_{ed2}: 47/15$ | 4                 | 2                    | 2.0              | 1.0                        | 15                | 92     |
| 4        | 2/15           | 15/15          | 64             | 2/15              | 4/15                  | 2/15         | 56/75                                        | 4                 | 1                    | 3.0              | 2.0                        | 17                | 71     |
| 5        | 15/15          | 0              | -              | -                 | 5/15                  | 5/15         | 47/15                                        | 4                 | 1                    | 1.0              | 0.0                        | 12                | 67     |

Note 1: For sub-test 1 to 4,  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ . For sub-test 5,  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 5/15$  with  $\beta_{hs} = 5/15 * \beta_c$ .

Note 2: CM = 1 for  $\beta_d/\beta_c = 12/15$ ,  $\beta_{hs}/\beta_c = 24/15$ . For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the  $\beta_c/\beta_d$  ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 10/15$  and  $\beta_d = 15/15$ .

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

**Setup Configuration**

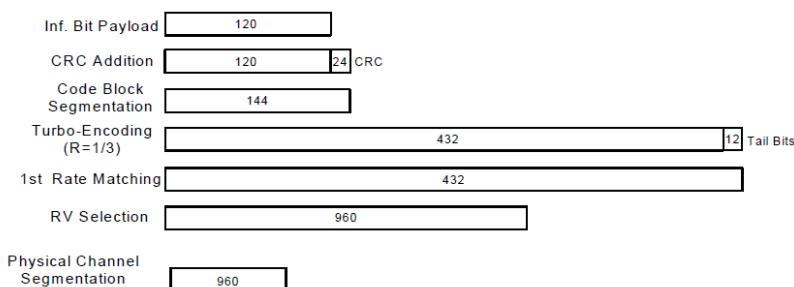
**DC-HSDPA 3GPP release 8 Setup Configuration:**

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration below
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
  - i. Set RMC 12.2Kbps + HSDPA mode.
  - ii. Set Cell Power = -25 dBm
  - iii. Set HS-DSCH Configuration Type to FRC (H-set 12, QPSK)
  - iv. Select HSDPA Uplink Parameters
  - v. Set Gain Factors ( $\beta_c$  and  $\beta_d$ ) and parameters were set according to each Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
    - a). Subtest 1:  $\beta_c/\beta_d=2/15$
    - b). Subtest 2:  $\beta_c/\beta_d=12/15$
    - c). Subtest 3:  $\beta_c/\beta_d=15/8$
    - d). Subtest 4:  $\beta_c/\beta_d=15/4$
  - vi. Set Delta ACK, Delta NACK and Delta CQI = 8
  - vii. Set Ack-Nack Repetition Factor to 3
  - viii. Set CQI Feedback Cycle (k) to 4 ms
  - ix. Set CQI Repetition Cycle to 2
  - x. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification. A summary of these settings are illustrated below:

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

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


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

**<WCDMA Conducted Power>**
**General Note:**

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is  $\leq \frac{1}{4}$  dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is  $\leq 1.2$  W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than  $\frac{1}{4}$  dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

**<Default Power Mode>**

| Band            |                    | WCDMA II |       |        | Tune-up Limit (dBm) | WCDMA IV |        |        | Tune-up Limit (dBm) | WCDMA V |       |       | Tune-up Limit (dBm) |
|-----------------|--------------------|----------|-------|--------|---------------------|----------|--------|--------|---------------------|---------|-------|-------|---------------------|
| TX Channel      |                    | 9262     | 9400  | 9538   |                     | 1312     | 1413   | 1513   |                     | 4132    | 4182  | 4233  |                     |
| Rx Channel      |                    | 9662     | 9800  | 9938   |                     | 1537     | 1638   | 1738   |                     | 4357    | 4407  | 4458  |                     |
| Frequency (MHz) |                    | 1852.4   | 1880  | 1907.6 |                     | 1712.4   | 1732.6 | 1752.6 |                     | 826.4   | 836.4 | 846.6 |                     |
| 3GPP Rel 99     | AMR 12.2Kbps       | 22.76    | 22.74 | 22.56  | 24.00               | 22.76    | 22.94  | 22.92  | 24.00               | 22.80   | 22.78 | 22.73 | 24.00               |
| 3GPP Rel 99     | RMC 12.2Kbps       | 22.78    | 22.75 | 22.58  | 24.00               | 22.77    | 22.95  | 22.93  | 24.00               | 22.81   | 22.81 | 22.75 | 24.00               |
| 3GPP Rel 6      | HSDPA Subtest-1    | 22.11    | 22.13 | 21.97  | 23.00               | 21.86    | 21.91  | 22.01  | 23.00               | 21.70   | 21.72 | 21.73 | 23.00               |
| 3GPP Rel 6      | HSDPA Subtest-2    | 22.13    | 22.17 | 21.99  | 23.00               | 21.84    | 21.87  | 22.00  | 23.00               | 21.73   | 21.74 | 21.76 | 23.00               |
| 3GPP Rel 6      | HSDPA Subtest-3    | 21.62    | 21.68 | 21.47  | 22.50               | 21.35    | 21.38  | 21.50  | 22.50               | 21.23   | 21.26 | 21.27 | 22.50               |
| 3GPP Rel 6      | HSDPA Subtest-4    | 21.60    | 21.67 | 21.47  | 22.50               | 21.33    | 21.37  | 21.49  | 22.50               | 21.23   | 21.25 | 21.25 | 22.50               |
| 3GPP Rel 8      | DC-HSDPA Subtest-1 | 22.10    | 22.16 | 22.00  | 23.00               | 21.85    | 21.90  | 22.02  | 23.00               | 21.72   | 21.73 | 21.74 | 23.00               |
| 3GPP Rel 8      | DC-HSDPA Subtest-2 | 22.13    | 22.13 | 22.02  | 23.00               | 21.83    | 21.88  | 22.00  | 23.00               | 21.73   | 21.73 | 21.77 | 23.00               |
| 3GPP Rel 8      | DC-HSDPA Subtest-3 | 21.63    | 21.68 | 21.46  | 22.50               | 21.35    | 21.38  | 21.49  | 22.50               | 21.22   | 21.26 | 21.28 | 22.50               |
| 3GPP Rel 8      | DC-HSDPA Subtest-4 | 21.63    | 21.65 | 21.47  | 22.50               | 21.34    | 21.36  | 21.47  | 22.50               | 21.23   | 21.24 | 21.24 | 22.50               |
| 3GPP Rel 6      | HSUPA Subtest-1    | 22.22    | 22.19 | 22.05  | 23.00               | 21.89    | 22.00  | 22.01  | 23.00               | 21.91   | 21.94 | 21.75 | 23.00               |
| 3GPP Rel 6      | HSUPA Subtest-2    | 20.21    | 20.13 | 20.09  | 21.00               | 19.62    | 19.82  | 19.80  | 21.00               | 20.01   | 20.05 | 19.98 | 21.00               |
| 3GPP Rel 6      | HSUPA Subtest-3    | 21.05    | 21.10 | 20.98  | 22.00               | 20.09    | 20.15  | 20.13  | 22.00               | 21.03   | 21.01 | 20.91 | 22.00               |
| 3GPP Rel 6      | HSUPA Subtest-4    | 20.15    | 20.13 | 20.05  | 21.00               | 19.78    | 19.92  | 19.91  | 21.00               | 20.01   | 20.01 | 19.83 | 21.00               |
| 3GPP Rel 6      | HSUPA Subtest-5    | 22.19    | 22.17 | 22.06  | 23.00               | 21.85    | 22.01  | 22.00  | 23.00               | 21.98   | 22.00 | 21.96 | 23.00               |

**<Near-Body Power Mode>**

| Band            |                    | WCDMA II |       |        | Tune-up Limit (dBm) | WCDMA IV |        |        | Tune-up Limit (dBm) | WCDMA V |       |       | Tune-up Limit (dBm) |
|-----------------|--------------------|----------|-------|--------|---------------------|----------|--------|--------|---------------------|---------|-------|-------|---------------------|
| TX Channel      |                    | 9262     | 9400  | 9538   |                     | 1312     | 1413   | 1513   |                     | 4132    | 4182  | 4233  |                     |
| Rx Channel      |                    | 9662     | 9800  | 9938   |                     | 1537     | 1638   | 1738   |                     | 4357    | 4407  | 4458  |                     |
| Frequency (MHz) |                    | 1852.4   | 1880  | 1907.6 |                     | 1712.4   | 1732.6 | 1752.6 |                     | 826.4   | 836.4 | 846.6 |                     |
| 3GPP Rel 99     | AMR 12.2Kbps       | 20.23    | 20.18 | 20.18  | 21.00               | 19.26    | 19.28  | 19.26  | 20.00               | 22.19   | 22.05 | 21.91 | 23.00               |
| 3GPP Rel 99     | RMC 12.2Kbps       | 20.33    | 20.25 | 20.23  | 21.00               | 19.30    | 19.31  | 19.29  | 20.00               | 22.27   | 22.15 | 22.03 | 23.00               |
| 3GPP Rel 6      | HSDPA Subtest-1    | 19.21    | 18.96 | 19.08  | 20.00               | 18.19    | 18.19  | 18.13  | 19.00               | 21.25   | 21.16 | 21.10 | 22.00               |
| 3GPP Rel 6      | HSDPA Subtest-2    | 19.29    | 18.87 | 19.08  | 20.00               | 18.16    | 18.22  | 18.17  | 19.00               | 21.22   | 21.16 | 21.14 | 22.00               |
| 3GPP Rel 6      | HSDPA Subtest-3    | 18.77    | 18.54 | 18.57  | 19.50               | 18.11    | 17.73  | 17.74  | 18.50               | 20.76   | 20.67 | 20.62 | 21.50               |
| 3GPP Rel 6      | HSDPA Subtest-4    | 18.77    | 18.54 | 18.59  | 19.50               | 18.11    | 17.74  | 17.73  | 18.50               | 20.84   | 20.69 | 20.60 | 21.50               |
| 3GPP Rel 8      | DC-HSDPA Subtest-1 | 19.17    | 18.79 | 18.95  | 20.00               | 18.22    | 18.23  | 18.16  | 19.00               | 21.12   | 21.11 | 21.00 | 22.00               |
| 3GPP Rel 8      | DC-HSDPA Subtest-2 | 19.16    | 18.81 | 19.03  | 20.00               | 18.24    | 18.23  | 18.13  | 19.00               | 21.18   | 21.02 | 21.10 | 22.00               |
| 3GPP Rel 8      | DC-HSDPA Subtest-3 | 18.71    | 18.53 | 18.49  | 19.50               | 17.76    | 17.71  | 17.65  | 18.50               | 20.56   | 20.56 | 20.62 | 21.50               |
| 3GPP Rel 8      | DC-HSDPA Subtest-4 | 18.60    | 18.44 | 18.44  | 19.50               | 17.65    | 17.66  | 17.66  | 18.50               | 20.78   | 20.63 | 20.50 | 21.50               |
| 3GPP Rel 6      | HSUPA Subtest-1    | 19.24    | 18.99 | 19.05  | 20.00               | 18.16    | 18.22  | 18.11  | 19.00               | 21.22   | 21.14 | 21.03 | 22.00               |
| 3GPP Rel 6      | HSUPA Subtest-2    | 17.28    | 17.05 | 17.03  | 18.00               | 16.21    | 16.27  | 16.13  | 17.00               | 19.30   | 19.16 | 19.09 | 20.00               |
| 3GPP Rel 6      | HSUPA Subtest-3    | 18.21    | 18.00 | 18.07  | 19.00               | 17.22    | 17.21  | 17.19  | 18.00               | 20.25   | 20.20 | 20.07 | 21.00               |
| 3GPP Rel 6      | HSUPA Subtest-4    | 17.22    | 17.00 | 17.05  | 18.00               | 16.22    | 16.25  | 16.12  | 17.00               | 19.23   | 19.21 | 19.09 | 20.00               |
| 3GPP Rel 6      | HSUPA Subtest-5    | 19.30    | 19.10 | 19.00  | 20.00               | 18.18    | 18.25  | 18.17  | 19.00               | 21.30   | 21.10 | 21.10 | 22.00               |

**<Hotspot Power Mode>**

| Band            |                    | WCDMA II |       |        | Tune-up<br>Limit<br>(dBm) | WCDMA IV |        |        | Tune-up<br>Limit<br>(dBm) | WCDMA V |       |       | Tune-up<br>Limit<br>(dBm) |
|-----------------|--------------------|----------|-------|--------|---------------------------|----------|--------|--------|---------------------------|---------|-------|-------|---------------------------|
| TX Channel      |                    | 9262     | 9400  | 9538   |                           | 1312     | 1413   | 1513   |                           | 4132    | 4182  | 4233  |                           |
| Rx Channel      |                    | 9662     | 9800  | 9938   |                           | 1537     | 1638   | 1738   |                           | 4357    | 4407  | 4458  |                           |
| Frequency (MHz) |                    | 1852.4   | 1880  | 1907.6 |                           | 1712.4   | 1732.6 | 1752.6 |                           | 826.4   | 836.4 | 846.6 |                           |
| 3GPP Rel 99     | AMR 12.2Kbps       | 17.53    | 17.32 | 17.36  | 18.00                     | 17.13    | 17.24  | 17.14  | 18.00                     | 22.19   | 22.05 | 21.91 | 23.00                     |
| 3GPP Rel 99     | RMC 12.2Kbps       | 17.55    | 17.36 | 17.38  | 18.00                     | 17.26    | 17.28  | 17.22  | 18.00                     | 22.27   | 22.15 | 22.03 | 23.00                     |
| 3GPP Rel 6      | HSDPA Subtest-1    | 16.63    | 16.42 | 16.41  | 17.00                     | 16.21    | 16.25  | 16.11  | 17.00                     | 21.25   | 21.16 | 21.10 | 22.00                     |
| 3GPP Rel 6      | HSDPA Subtest-2    | 16.65    | 16.45 | 16.45  | 17.00                     | 16.22    | 16.23  | 16.10  | 17.00                     | 21.22   | 21.16 | 21.14 | 22.00                     |
| 3GPP Rel 6      | HSDPA Subtest-3    | 16.14    | 15.92 | 15.96  | 16.50                     | 15.71    | 15.77  | 15.63  | 16.50                     | 20.76   | 20.67 | 20.62 | 21.50                     |
| 3GPP Rel 6      | HSDPA Subtest-4    | 16.14    | 15.95 | 15.97  | 16.50                     | 15.70    | 15.76  | 15.66  | 16.50                     | 20.84   | 20.69 | 20.60 | 21.50                     |
| 3GPP Rel 8      | DC-HSDPA Subtest-1 | 16.45    | 16.40 | 16.28  | 17.00                     | 16.23    | 16.34  | 16.15  | 17.00                     | 21.12   | 21.11 | 21.00 | 22.00                     |
| 3GPP Rel 8      | DC-HSDPA Subtest-2 | 16.49    | 16.31 | 16.25  | 17.00                     | 16.26    | 16.33  | 16.10  | 17.00                     | 21.18   | 21.02 | 21.10 | 22.00                     |
| 3GPP Rel 8      | DC-HSDPA Subtest-3 | 15.99    | 15.72 | 15.95  | 16.50                     | 15.77    | 15.81  | 15.59  | 16.50                     | 20.56   | 20.56 | 20.62 | 21.50                     |
| 3GPP Rel 8      | DC-HSDPA Subtest-4 | 15.98    | 15.92 | 15.95  | 16.50                     | 15.78    | 15.80  | 15.49  | 16.50                     | 20.78   | 20.63 | 20.50 | 21.50                     |
| 3GPP Rel 6      | HSUPA Subtest-1    | 16.62    | 16.51 | 16.55  | 17.00                     | 16.22    | 16.38  | 16.21  | 17.00                     | 21.22   | 21.14 | 21.03 | 22.00                     |
| 3GPP Rel 6      | HSUPA Subtest-2    | 14.60    | 14.23 | 14.45  | 15.00                     | 14.21    | 14.32  | 14.28  | 15.00                     | 19.30   | 19.16 | 19.09 | 20.00                     |
| 3GPP Rel 6      | HSUPA Subtest-3    | 15.54    | 15.46 | 15.49  | 16.00                     | 15.23    | 15.36  | 15.21  | 16.00                     | 20.25   | 20.20 | 20.07 | 21.00                     |
| 3GPP Rel 6      | HSUPA Subtest-4    | 14.63    | 14.34 | 14.41  | 15.00                     | 14.22    | 14.33  | 14.29  | 15.00                     | 19.23   | 19.21 | 19.09 | 20.00                     |
| 3GPP Rel 6      | HSUPA Subtest-5    | 16.60    | 16.40 | 16.50  | 17.00                     | 16.23    | 16.41  | 16.19  | 17.00                     | 21.30   | 21.10 | 21.10 | 22.00                     |

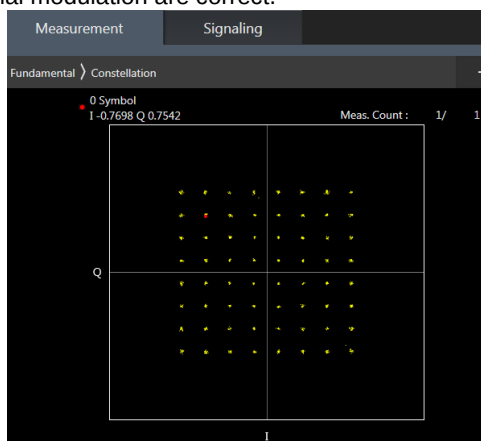
**<Product Specific Power Mode>**

| Band            |                    | WCDMA II |       |        | Tune-up<br>Limit<br>(dBm) | WCDMA IV |        |        | Tune-up<br>Limit<br>(dBm) | WCDMA V |       |       | Tune-up<br>Limit<br>(dBm) |
|-----------------|--------------------|----------|-------|--------|---------------------------|----------|--------|--------|---------------------------|---------|-------|-------|---------------------------|
| TX Channel      |                    | 9262     | 9400  | 9538   |                           | 1312     | 1413   | 1513   |                           | 4132    | 4182  | 4233  |                           |
| Rx Channel      |                    | 9662     | 9800  | 9938   |                           | 1537     | 1638   | 1738   |                           | 4357    | 4407  | 4458  |                           |
| Frequency (MHz) |                    | 1852.4   | 1880  | 1907.6 |                           | 1712.4   | 1732.6 | 1752.6 |                           | 826.4   | 836.4 | 846.6 |                           |
| 3GPP Rel 99     | AMR 12.2Kbps       | 21.63    | 21.43 | 21.46  | 22.00                     | 20.70    | 20.71  | 20.61  | 22.00                     | 22.19   | 22.05 | 21.91 | 23.00                     |
| 3GPP Rel 99     | RMC 12.2Kbps       | 21.70    | 21.46 | 21.49  | 22.00                     | 20.72    | 20.74  | 20.68  | 22.00                     | 22.27   | 22.15 | 22.03 | 23.00                     |
| 3GPP Rel 6      | HSDPA Subtest-1    | 20.69    | 20.48 | 20.53  | 21.00                     | 20.21    | 20.22  | 20.16  | 21.00                     | 21.25   | 21.16 | 21.10 | 22.00                     |
| 3GPP Rel 6      | HSDPA Subtest-2    | 20.73    | 20.49 | 20.50  | 21.00                     | 20.23    | 20.28  | 20.15  | 21.00                     | 21.22   | 21.16 | 21.14 | 22.00                     |
| 3GPP Rel 6      | HSDPA Subtest-3    | 20.26    | 20.03 | 20.01  | 20.50                     | 19.74    | 19.76  | 19.63  | 20.50                     | 20.76   | 20.67 | 20.62 | 21.50                     |
| 3GPP Rel 6      | HSDPA Subtest-4    | 20.19    | 19.96 | 20.06  | 20.50                     | 19.74    | 19.78  | 19.66  | 20.50                     | 20.84   | 20.69 | 20.60 | 21.50                     |
| 3GPP Rel 8      | DC-HSDPA Subtest-1 | 20.57    | 20.29 | 20.50  | 21.00                     | 20.19    | 20.26  | 20.11  | 21.00                     | 21.12   | 21.11 | 21.00 | 22.00                     |
| 3GPP Rel 8      | DC-HSDPA Subtest-2 | 20.71    | 20.36 | 20.50  | 21.00                     | 20.21    | 20.26  | 20.17  | 21.00                     | 21.18   | 21.02 | 21.10 | 22.00                     |
| 3GPP Rel 8      | DC-HSDPA Subtest-3 | 20.24    | 19.95 | 20.00  | 20.50                     | 19.78    | 19.83  | 19.64  | 20.50                     | 20.56   | 20.56 | 20.62 | 21.50                     |
| 3GPP Rel 8      | DC-HSDPA Subtest-4 | 20.10    | 19.91 | 19.95  | 20.50                     | 19.77    | 19.79  | 19.62  | 20.50                     | 20.78   | 20.63 | 20.50 | 21.50                     |
| 3GPP Rel 6      | HSUPA Subtest-1    | 20.70    | 20.50 | 20.55  | 21.00                     | 20.23    | 20.30  | 20.11  | 21.00                     | 21.22   | 21.14 | 21.03 | 22.00                     |
| 3GPP Rel 6      | HSUPA Subtest-2    | 18.72    | 18.49 | 18.55  | 19.00                     | 18.26    | 18.29  | 18.15  | 19.00                     | 19.30   | 19.16 | 19.09 | 20.00                     |
| 3GPP Rel 6      | HSUPA Subtest-3    | 19.70    | 19.54 | 19.54  | 20.00                     | 19.24    | 19.27  | 19.16  | 20.00                     | 20.25   | 20.20 | 20.07 | 21.00                     |
| 3GPP Rel 6      | HSUPA Subtest-4    | 18.72    | 18.53 | 18.57  | 19.00                     | 18.23    | 18.31  | 18.14  | 19.00                     | 19.23   | 19.21 | 19.09 | 20.00                     |
| 3GPP Rel 6      | HSUPA Subtest-5    | 20.80    | 20.50 | 20.60  | 21.00                     | 20.26    | 20.31  | 20.15  | 21.00                     | 21.30   | 21.10 | 21.10 | 22.00                     |

### <LTE Conducted Power>

#### General Note:

1. Anritsu MT8820C 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 B5 / B12 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.
9. LTE band 4 / 17 SAR test was covered by Band 66 / 12; 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**

**<Default 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 18700                    | 18900                       | 19100                     |                        |             |
| Frequency (MHz) |            |         |           | 1860                     | 1880                        | 1900                      |                        |             |
| 20              | QPSK       | 1       | 0         | 22.53                    | 22.90                       | 22.78                     | 24                     | 0           |
| 20              | QPSK       | 1       | 49        | 22.48                    | 22.69                       | 22.79                     |                        |             |
| 20              | QPSK       | 1       | 99        | 22.44                    | 22.55                       | 22.75                     |                        |             |
| 20              | QPSK       | 50      | 0         | 21.55                    | 21.71                       | 21.84                     | 23                     | 1           |
| 20              | QPSK       | 50      | 24        | 21.52                    | 21.68                       | 21.81                     |                        |             |
| 20              | QPSK       | 50      | 50        | 21.54                    | 21.63                       | 21.79                     |                        |             |
| 20              | QPSK       | 100     | 0         | 21.62                    | 21.69                       | 21.78                     | 23                     | 1           |
| 20              | 16QAM      | 1       | 0         | 21.94                    | 22.13                       | 22.22                     |                        |             |
| 20              | 16QAM      | 1       | 49        | 21.93                    | 22.06                       | 22.20                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 21.91                    | 22.00                       | 22.15                     | 22                     | 2           |
| 20              | 16QAM      | 50      | 0         | 20.69                    | 20.86                       | 20.93                     |                        |             |
| 20              | 16QAM      | 50      | 24        | 20.67                    | 20.82                       | 20.98                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 20.68                    | 20.76                       | 20.92                     | 22                     | 2           |
| 20              | 16QAM      | 100     | 0         | 20.77                    | 20.82                       | 20.91                     |                        |             |
| 20              | 64QAM      | 1       | 0         | 20.97                    | 21.16                       | 21.22                     |                        |             |
| 20              | 64QAM      | 1       | 49        | 20.94                    | 21.08                       | 21.20                     | 22                     | 2           |
| 20              | 64QAM      | 1       | 99        | 20.88                    | 21.01                       | 21.10                     |                        |             |
| 20              | 64QAM      | 50      | 0         | 19.78                    | 19.96                       | 20.04                     |                        |             |
| 20              | 64QAM      | 50      | 24        | 19.76                    | 19.94                       | 20.05                     | 21                     | 3           |
| 20              | 64QAM      | 50      | 50        | 19.75                    | 19.85                       | 20.01                     |                        |             |
| 20              | 64QAM      | 100     | 0         | 19.88                    | 19.92                       | 20.04                     |                        |             |
| Channel         |            |         |           | 18675                    | 18900                       | 19125                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1857.5                   | 1880                        | 1902.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 22.66                    | 22.71                       | 22.82                     | 24                     | 0           |
| 15              | QPSK       | 1       | 37        | 22.57                    | 22.66                       | 22.79                     |                        |             |
| 15              | QPSK       | 1       | 74        | 22.47                    | 22.59                       | 22.72                     |                        |             |
| 15              | QPSK       | 36      | 0         | 21.69                    | 21.72                       | 21.83                     | 23                     | 1           |
| 15              | QPSK       | 36      | 20        | 21.63                    | 21.68                       | 21.85                     |                        |             |
| 15              | QPSK       | 36      | 39        | 21.57                    | 21.62                       | 21.81                     |                        |             |
| 15              | QPSK       | 75      | 0         | 21.57                    | 21.64                       | 21.80                     | 23                     | 1           |
| 15              | 16QAM      | 1       | 0         | 22.08                    | 22.20                       | 22.26                     |                        |             |
| 15              | 16QAM      | 1       | 37        | 22.02                    | 22.05                       | 22.21                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 21.92                    | 22.05                       | 22.06                     | 22                     | 2           |
| 15              | 16QAM      | 36      | 0         | 20.79                    | 20.86                       | 20.97                     |                        |             |
| 15              | 16QAM      | 36      | 20        | 20.80                    | 20.88                       | 21.00                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 20.71                    | 20.79                       | 20.91                     | 22                     | 2           |
| 15              | 16QAM      | 75      | 0         | 20.77                    | 20.80                       | 20.94                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 21.01                    | 21.02                       | 21.11                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 20.91                    | 20.92                       | 21.10                     | 22                     | 2           |
| 15              | 64QAM      | 1       | 74        | 20.81                    | 20.91                       | 20.99                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 19.83                    | 19.88                       | 19.97                     |                        |             |
| 15              | 64QAM      | 36      | 20        | 19.81                    | 19.86                       | 19.99                     | 21                     | 3           |
| 15              | 64QAM      | 36      | 39        | 19.71                    | 19.79                       | 19.92                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 19.75                    | 19.82                       | 19.95                     |                        |             |
| Channel         |            |         |           | 18650                    | 18900                       | 19150                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1855                     | 1880                        | 1905                      |                        |             |
| 10              | QPSK       | 1       | 0         | 22.57                    | 22.67                       | 22.80                     | 24                     | 0           |
| 10              | QPSK       | 1       | 25        | 22.57                    | 22.61                       | 22.81                     |                        |             |
| 10              | QPSK       | 1       | 49        | 22.50                    | 22.58                       | 22.82                     |                        |             |



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|                 |       |    |    |        |       |        |                        |             |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| 10              | QPSK  | 25 | 0  | 21.60  | 21.67 | 21.95  | 23                     | 1           |
| 10              | QPSK  | 25 | 12 | 21.61  | 21.66 | 21.97  |                        |             |
| 10              | QPSK  | 25 | 25 | 21.58  | 21.64 | 21.96  |                        |             |
| 10              | QPSK  | 50 | 0  | 21.56  | 21.66 | 21.94  |                        |             |
| 10              | 16QAM | 1  | 0  | 21.98  | 22.07 | 22.30  | 23                     | 1           |
| 10              | 16QAM | 1  | 25 | 22.03  | 22.07 | 22.29  |                        |             |
| 10              | 16QAM | 1  | 49 | 21.97  | 22.00 | 22.16  |                        |             |
| 10              | 16QAM | 25 | 0  | 20.79  | 20.78 | 21.12  | 22                     | 2           |
| 10              | 16QAM | 25 | 12 | 20.79  | 20.83 | 21.11  |                        |             |
| 10              | 16QAM | 25 | 25 | 20.73  | 20.78 | 21.07  |                        |             |
| 10              | 16QAM | 50 | 0  | 20.73  | 20.79 | 21.08  |                        |             |
| 10              | 64QAM | 1  | 0  | 20.87  | 20.96 | 21.22  | 22                     | 2           |
| 10              | 64QAM | 1  | 25 | 20.88  | 20.99 | 21.16  |                        |             |
| 10              | 64QAM | 1  | 49 | 20.83  | 20.90 | 21.11  |                        |             |
| 10              | 64QAM | 25 | 0  | 19.76  | 19.81 | 20.10  | 21                     | 3           |
| 10              | 64QAM | 25 | 12 | 19.79  | 19.81 | 20.14  |                        |             |
| 10              | 64QAM | 25 | 25 | 19.70  | 19.76 | 20.08  |                        |             |
| 10              | 64QAM | 50 | 0  | 19.73  | 19.78 | 20.08  |                        |             |
| Channel         |       |    |    | 18625  | 18900 | 19175  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1852.5 | 1880  | 1907.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 22.57  | 22.64 | 22.89  | 24                     | 0           |
| 5               | QPSK  | 1  | 12 | 22.58  | 22.62 | 22.89  |                        |             |
| 5               | QPSK  | 1  | 24 | 22.57  | 22.60 | 22.83  |                        |             |
| 5               | QPSK  | 12 | 0  | 21.61  | 21.65 | 21.96  | 23                     | 1           |
| 5               | QPSK  | 12 | 7  | 21.66  | 21.67 | 22.01  |                        |             |
| 5               | QPSK  | 12 | 13 | 21.57  | 21.67 | 21.96  |                        |             |
| 5               | QPSK  | 25 | 0  | 21.57  | 21.62 | 21.95  |                        |             |
| 5               | 16QAM | 1  | 0  | 22.00  | 22.00 | 22.21  | 23                     | 1           |
| 5               | 16QAM | 1  | 12 | 22.00  | 22.05 | 22.27  |                        |             |
| 5               | 16QAM | 1  | 24 | 21.95  | 22.07 | 22.21  |                        |             |
| 5               | 16QAM | 12 | 0  | 20.78  | 20.84 | 21.13  | 22                     | 2           |
| 5               | 16QAM | 12 | 7  | 20.80  | 20.84 | 21.15  |                        |             |
| 5               | 16QAM | 12 | 13 | 20.76  | 20.80 | 21.07  |                        |             |
| 5               | 16QAM | 25 | 0  | 20.74  | 20.77 | 21.04  |                        |             |
| 5               | 64QAM | 1  | 0  | 20.94  | 20.97 | 21.14  | 22                     | 2           |
| 5               | 64QAM | 1  | 12 | 20.92  | 20.98 | 21.18  |                        |             |
| 5               | 64QAM | 1  | 24 | 20.90  | 20.94 | 21.10  |                        |             |
| 5               | 64QAM | 12 | 0  | 19.75  | 19.83 | 20.11  | 21                     | 3           |
| 5               | 64QAM | 12 | 7  | 19.81  | 19.82 | 20.13  |                        |             |
| 5               | 64QAM | 12 | 13 | 19.74  | 19.80 | 20.06  |                        |             |
| 5               | 64QAM | 25 | 0  | 19.75  | 19.78 | 20.06  |                        |             |
| Channel         |       |    |    | 18615  | 18900 | 19185  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1851.5 | 1880  | 1908.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 22.57  | 22.58 | 22.84  | 24                     | 0           |
| 3               | QPSK  | 1  | 8  | 22.58  | 22.64 | 22.87  |                        |             |
| 3               | QPSK  | 1  | 14 | 22.53  | 22.60 | 22.82  |                        |             |
| 3               | QPSK  | 8  | 0  | 21.58  | 21.66 | 21.96  | 23                     | 1           |
| 3               | QPSK  | 8  | 4  | 21.63  | 21.66 | 21.99  |                        |             |
| 3               | QPSK  | 8  | 7  | 21.57  | 21.62 | 21.94  |                        |             |
| 3               | QPSK  | 15 | 0  | 21.61  | 21.64 | 21.95  |                        |             |
| 3               | 16QAM | 1  | 0  | 21.93  | 21.97 | 22.23  | 23                     | 1           |
| 3               | 16QAM | 1  | 8  | 22.00  | 22.05 | 22.25  |                        |             |
| 3               | 16QAM | 1  | 14 | 21.91  | 21.97 | 22.19  |                        |             |
| 3               | 16QAM | 8  | 0  | 20.81  | 20.84 | 21.11  | 22                     | 2           |
| 3               | 16QAM | 8  | 4  | 20.82  | 20.87 | 21.16  |                        |             |
| 3               | 16QAM | 8  | 7  | 20.80  | 20.84 | 21.12  |                        |             |



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|                 |       |    |    |        |       |        |                        |             |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| 3               | 16QAM | 15 | 0  | 20.72  | 20.76 | 21.10  |                        |             |
| 3               | 64QAM | 1  | 0  | 20.85  | 20.92 | 21.11  | 22                     | 2           |
| 3               | 64QAM | 1  | 8  | 20.86  | 20.96 | 21.09  |                        |             |
| 3               | 64QAM | 1  | 14 | 20.88  | 20.95 | 21.07  |                        |             |
| 3               | 64QAM | 8  | 0  | 19.77  | 19.81 | 20.10  | 21                     | 3           |
| 3               | 64QAM | 8  | 4  | 19.79  | 19.84 | 20.11  |                        |             |
| 3               | 64QAM | 8  | 7  | 19.75  | 19.81 | 20.08  |                        |             |
| 3               | 64QAM | 15 | 0  | 19.72  | 19.74 | 20.09  |                        |             |
| Channel         |       |    |    | 18607  | 18900 | 19193  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1850.7 | 1880  | 1909.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 22.43  | 22.58 | 22.79  | 24                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 22.45  | 22.64 | 22.87  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 22.40  | 22.54 | 22.77  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 22.42  | 22.58 | 22.85  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 22.45  | 22.63 | 22.87  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 22.42  | 22.57 | 22.87  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 21.40  | 21.53 | 21.88  | 23                     | 1           |
| 1.4             | 16QAM | 1  | 0  | 21.81  | 21.99 | 22.17  | 23                     | 1           |
| 1.4             | 16QAM | 1  | 3  | 21.88  | 22.08 | 22.21  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 21.84  | 21.95 | 22.16  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 21.57  | 21.74 | 21.96  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 21.61  | 21.80 | 21.94  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 21.60  | 21.68 | 21.91  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 20.58  | 20.73 | 21.06  | 22                     | 2           |
| 1.4             | 64QAM | 1  | 0  | 20.74  | 20.86 | 21.09  | 22                     | 2           |
| 1.4             | 64QAM | 1  | 3  | 20.78  | 20.91 | 21.17  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 20.75  | 20.84 | 21.01  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 20.60  | 20.77 | 21.00  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 20.65  | 20.84 | 21.04  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 20.61  | 20.75 | 20.99  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 19.58  | 19.70 | 20.02  | 21                     | 3           |



**<LTE Band 4>**

| 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 20050                    | 20175                       | 20300                     |                        |             |
| Frequency (MHz) |            |         |           | 1720                     | 1732.5                      | 1745                      |                        |             |
| 20              | QPSK       | 1       | 0         | 22.67                    | 22.52                       | 22.62                     |                        |             |
| 20              | QPSK       | 1       | 49        | 22.45                    | 22.61                       | 22.72                     | 24                     | 0           |
| 20              | QPSK       | 1       | 99        | 22.29                    | 22.64                       | 22.57                     |                        |             |
| 20              | QPSK       | 50      | 0         | 21.55                    | 21.60                       | 21.62                     |                        |             |
| 20              | QPSK       | 50      | 24        | 21.58                    | 21.64                       | 21.68                     | 23                     | 1           |
| 20              | QPSK       | 50      | 50        | 21.48                    | 21.56                       | 21.63                     |                        |             |
| 20              | QPSK       | 100     | 0         | 21.52                    | 21.58                       | 21.57                     |                        |             |
| 20              | 16QAM      | 1       | 0         | 22.08                    | 21.97                       | 22.10                     | 23                     | 1           |
| 20              | 16QAM      | 1       | 49        | 21.80                    | 22.06                       | 22.23                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 21.83                    | 22.04                       | 22.02                     |                        |             |
| 20              | 16QAM      | 50      | 0         | 20.70                    | 20.77                       | 20.75                     | 22                     | 2           |
| 20              | 16QAM      | 50      | 24        | 20.71                    | 20.76                       | 20.82                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 20.66                    | 20.70                       | 20.75                     |                        |             |
| 20              | 16QAM      | 100     | 0         | 20.67                    | 20.74                       | 20.67                     | 22                     | 2           |
| 20              | 64QAM      | 1       | 0         | 20.95                    | 20.86                       | 20.98                     |                        |             |
| 20              | 64QAM      | 1       | 49        | 20.72                    | 20.91                       | 21.03                     |                        |             |
| 20              | 64QAM      | 1       | 99        | 20.64                    | 20.94                       | 20.87                     | 21                     | 3           |
| 20              | 64QAM      | 50      | 0         | 19.70                    | 19.77                       | 19.75                     |                        |             |
| 20              | 64QAM      | 50      | 24        | 19.69                    | 19.75                       | 19.81                     |                        |             |
| 20              | 64QAM      | 50      | 50        | 19.64                    | 19.68                       | 19.76                     | 21                     | 3           |
| 20              | 64QAM      | 100     | 0         | 19.72                    | 19.78                       | 19.71                     |                        |             |
| Channel         |            |         |           | 20025                    | 20175                       | 20325                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1717.5                   | 1732.5                      | 1747.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 22.68                    | 22.51                       | 22.64                     |                        |             |
| 15              | QPSK       | 1       | 37        | 22.41                    | 22.59                       | 22.68                     | 24                     | 0           |
| 15              | QPSK       | 1       | 74        | 22.26                    | 22.57                       | 22.62                     |                        |             |
| 15              | QPSK       | 36      | 0         | 21.56                    | 21.65                       | 21.72                     | 23                     | 1           |
| 15              | QPSK       | 36      | 20        | 21.59                    | 21.64                       | 21.72                     |                        |             |
| 15              | QPSK       | 36      | 39        | 21.49                    | 21.56                       | 21.64                     |                        |             |
| 15              | QPSK       | 75      | 0         | 21.57                    | 21.57                       | 21.65                     | 23                     | 1           |
| 15              | 16QAM      | 1       | 0         | 22.03                    | 21.99                       | 22.20                     |                        |             |
| 15              | 16QAM      | 1       | 37        | 21.78                    | 22.02                       | 22.08                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 21.75                    | 22.06                       | 22.01                     | 22                     | 2           |
| 15              | 16QAM      | 36      | 0         | 20.72                    | 20.76                       | 20.85                     |                        |             |
| 15              | 16QAM      | 36      | 20        | 20.72                    | 20.80                       | 20.86                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 20.67                    | 20.74                       | 20.79                     | 22                     | 2           |
| 15              | 16QAM      | 75      | 0         | 20.67                    | 20.76                       | 20.81                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 20.95                    | 20.93                       | 21.09                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 20.70                    | 20.92                       | 20.96                     | 22                     | 2           |
| 15              | 64QAM      | 1       | 74        | 20.71                    | 20.94                       | 20.93                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 19.72                    | 19.79                       | 19.86                     | 21                     | 3           |
| 15              | 64QAM      | 36      | 20        | 19.72                    | 19.80                       | 19.84                     |                        |             |
| 15              | 64QAM      | 36      | 39        | 19.68                    | 19.74                       | 19.79                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 19.67                    | 19.74                       | 19.79                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Channel         |            |         |           | 20000                    | 20175                       | 20350                     |                        |             |
| Frequency (MHz) |            |         |           | 1715                     | 1732.5                      | 1750                      |                        |             |
| 10              | QPSK       | 1       | 0         | 22.53                    | 22.51                       | 22.69                     | 24                     | 0           |
| 10              | QPSK       | 1       | 25        | 22.39                    | 22.59                       | 22.68                     |                        |             |
| 10              | QPSK       | 1       | 49        | 22.24                    | 22.51                       | 22.61                     |                        |             |
| 10              | QPSK       | 25      | 0         | 21.43                    | 21.61                       | 21.68                     | 23                     | 1           |
| 10              | QPSK       | 25      | 12        | 21.43                    | 21.59                       | 21.68                     |                        |             |



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|                 |       |    |    |        |        |        |                        |             |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| 10              | QPSK  | 25 | 25 | 21.37  | 21.55  | 21.62  |                        |             |
| 10              | QPSK  | 50 | 0  | 21.40  | 21.59  | 21.66  |                        |             |
| 10              | 16QAM | 1  | 0  | 21.95  | 21.92  | 22.12  |                        |             |
| 10              | 16QAM | 1  | 25 | 21.82  | 22.02  | 22.11  | 23                     | 1           |
| 10              | 16QAM | 1  | 49 | 21.69  | 21.99  | 22.03  |                        |             |
| 10              | 16QAM | 25 | 0  | 20.60  | 20.76  | 20.82  |                        |             |
| 10              | 16QAM | 25 | 12 | 20.56  | 20.74  | 20.81  | 22                     | 2           |
| 10              | 16QAM | 25 | 25 | 20.50  | 20.70  | 20.76  |                        |             |
| 10              | 16QAM | 50 | 0  | 20.56  | 20.71  | 20.77  |                        |             |
| 10              | 64QAM | 1  | 0  | 20.81  | 20.80  | 20.99  | 22                     | 2           |
| 10              | 64QAM | 1  | 25 | 20.71  | 20.91  | 20.99  |                        |             |
| 10              | 64QAM | 1  | 49 | 20.55  | 20.86  | 20.88  |                        |             |
| 10              | 64QAM | 25 | 0  | 19.56  | 19.77  | 19.82  | 21                     | 3           |
| 10              | 64QAM | 25 | 12 | 19.56  | 19.76  | 19.82  |                        |             |
| 10              | 64QAM | 25 | 25 | 19.52  | 19.71  | 19.75  |                        |             |
| 10              | 64QAM | 50 | 0  | 19.55  | 19.72  | 19.78  |                        |             |
| Channel         |       |    |    | 19975  | 20175  | 20375  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1712.5 | 1732.5 | 1752.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 22.33  | 22.38  | 22.49  | 24                     | 0           |
| 5               | QPSK  | 1  | 12 | 22.22  | 22.37  | 22.46  |                        |             |
| 5               | QPSK  | 1  | 24 | 22.18  | 22.35  | 22.44  |                        |             |
| 5               | QPSK  | 12 | 0  | 21.27  | 21.43  | 21.53  | 23                     | 1           |
| 5               | QPSK  | 12 | 7  | 21.31  | 21.45  | 21.55  |                        |             |
| 5               | QPSK  | 12 | 13 | 21.23  | 21.41  | 21.49  |                        |             |
| 5               | QPSK  | 25 | 0  | 21.23  | 21.40  | 21.47  | 23                     | 1           |
| 5               | 16QAM | 1  | 0  | 21.74  | 21.87  | 21.93  |                        |             |
| 5               | 16QAM | 1  | 12 | 21.67  | 21.88  | 21.89  |                        |             |
| 5               | 16QAM | 1  | 24 | 21.60  | 21.72  | 21.83  | 22                     | 2           |
| 5               | 16QAM | 12 | 0  | 20.41  | 20.61  | 20.64  |                        |             |
| 5               | 16QAM | 12 | 7  | 20.45  | 20.63  | 20.68  |                        |             |
| 5               | 16QAM | 12 | 13 | 20.39  | 20.60  | 20.64  | 22                     | 2           |
| 5               | 16QAM | 25 | 0  | 20.40  | 20.54  | 20.63  |                        |             |
| 5               | 64QAM | 1  | 0  | 20.63  | 20.69  | 20.80  |                        |             |
| 5               | 64QAM | 1  | 12 | 20.52  | 20.74  | 20.78  | 22                     | 2           |
| 5               | 64QAM | 1  | 24 | 20.48  | 20.64  | 20.74  |                        |             |
| 5               | 64QAM | 12 | 0  | 19.41  | 19.57  | 19.63  |                        |             |
| 5               | 64QAM | 12 | 7  | 19.44  | 19.61  | 19.68  | 21                     | 3           |
| 5               | 64QAM | 12 | 13 | 19.39  | 19.56  | 19.60  |                        |             |
| 5               | 64QAM | 25 | 0  | 19.39  | 19.54  | 19.61  |                        |             |
| Channel         |       |    |    | 19965  | 20175  | 20385  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1711.5 | 1732.5 | 1753.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 22.29  | 22.36  | 22.48  | 24                     | 0           |
| 3               | QPSK  | 1  | 8  | 22.23  | 22.37  | 22.48  |                        |             |
| 3               | QPSK  | 1  | 14 | 22.17  | 22.35  | 22.45  |                        |             |
| 3               | QPSK  | 8  | 0  | 21.25  | 21.40  | 21.53  | 23                     | 1           |
| 3               | QPSK  | 8  | 4  | 21.28  | 21.43  | 21.53  |                        |             |
| 3               | QPSK  | 8  | 7  | 21.24  | 21.41  | 21.52  |                        |             |
| 3               | QPSK  | 15 | 0  | 21.25  | 21.37  | 21.51  | 23                     | 1           |
| 3               | 16QAM | 1  | 0  | 21.71  | 21.77  | 21.88  |                        |             |
| 3               | 16QAM | 1  | 8  | 21.66  | 21.85  | 21.87  |                        |             |
| 3               | 16QAM | 1  | 14 | 21.54  | 21.79  | 21.87  | 22                     | 2           |
| 3               | 16QAM | 8  | 0  | 20.44  | 20.62  | 20.67  |                        |             |
| 3               | 16QAM | 8  | 4  | 20.47  | 20.64  | 20.70  |                        |             |
| 3               | 16QAM | 8  | 7  | 20.45  | 20.62  | 20.66  | 22                     | 2           |
| 3               | 16QAM | 15 | 0  | 20.36  | 20.56  | 20.63  |                        |             |
| 3               | 64QAM | 1  | 0  | 20.59  | 20.69  | 20.80  | 22                     | 2           |



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|                 |       |    |    |        |        |        |                        |             |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| 3               | 64QAM | 1  | 8  | 20.46  | 20.72  | 20.77  | 21                     | 3           |
| 3               | 64QAM | 1  | 14 | 20.42  | 20.68  | 20.76  |                        |             |
| 3               | 64QAM | 8  | 0  | 19.41  | 19.59  | 19.64  |                        |             |
| 3               | 64QAM | 8  | 4  | 19.44  | 19.64  | 19.67  |                        |             |
| 3               | 64QAM | 8  | 7  | 19.43  | 19.58  | 19.63  |                        |             |
| 3               | 64QAM | 15 | 0  | 19.38  | 19.55  | 19.61  |                        |             |
| Channel         |       |    |    | 19957  | 20175  | 20393  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1710.7 | 1732.5 | 1754.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 22.24  | 22.33  | 22.42  | 24                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 22.30  | 22.39  | 22.49  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 22.24  | 22.32  | 22.41  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 22.30  | 22.36  | 22.45  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 22.32  | 22.37  | 22.50  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 22.29  | 22.36  | 22.49  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 21.31  | 21.35  | 21.46  | 23                     | 1           |
| 1.4             | 16QAM | 1  | 0  | 21.61  | 21.80  | 21.85  | 23                     | 1           |
| 1.4             | 16QAM | 1  | 3  | 21.77  | 21.83  | 21.91  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 21.67  | 21.75  | 21.83  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 21.42  | 21.55  | 21.62  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 21.50  | 21.53  | 21.64  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 21.41  | 21.56  | 21.59  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 20.49  | 20.55  | 20.62  | 22                     | 2           |
| 1.4             | 64QAM | 1  | 0  | 20.58  | 20.68  | 20.71  | 22                     | 2           |
| 1.4             | 64QAM | 1  | 3  | 20.60  | 20.71  | 20.79  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 20.53  | 20.63  | 20.70  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 20.49  | 20.59  | 20.67  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 20.51  | 20.59  | 20.71  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 20.48  | 20.56  | 20.67  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 19.41  | 19.50  | 19.58  | 21                     | 3           |



**<LTE Band 5>**

| 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 20450                    | 20525                       | 20600                     |                        |             |
| Frequency (MHz) |            |         |           | 829                      | 836.5                       | 844                       |                        |             |
| 10              | QPSK       | 1       | 0         | 22.65                    | 22.59                       | 22.81                     | 24                     | 0           |
| 10              | QPSK       | 1       | 25        | 22.64                    | 22.87                       | 22.78                     |                        |             |
| 10              | QPSK       | 1       | 49        | 22.54                    | 22.54                       | 22.79                     |                        |             |
| 10              | QPSK       | 25      | 0         | 21.67                    | 21.67                       | 21.85                     | 23                     | 1           |
| 10              | QPSK       | 25      | 12        | 21.71                    | 21.73                       | 21.85                     |                        |             |
| 10              | QPSK       | 25      | 25        | 21.60                    | 21.61                       | 21.77                     |                        |             |
| 10              | QPSK       | 50      | 0         | 21.64                    | 21.68                       | 21.83                     |                        |             |
| 10              | 16QAM      | 1       | 0         | 22.02                    | 21.96                       | 22.22                     | 23                     | 1           |
| 10              | 16QAM      | 1       | 25        | 22.01                    | 22.04                       | 22.12                     |                        |             |
| 10              | 16QAM      | 1       | 49        | 21.95                    | 21.92                       | 22.17                     |                        |             |
| 10              | 16QAM      | 25      | 0         | 20.76                    | 20.83                       | 20.95                     | 22                     | 2           |
| 10              | 16QAM      | 25      | 12        | 20.76                    | 20.84                       | 20.96                     |                        |             |
| 10              | 16QAM      | 25      | 25        | 20.73                    | 20.71                       | 20.86                     |                        |             |
| 10              | 16QAM      | 50      | 0         | 20.76                    | 20.79                       | 20.95                     |                        |             |
| 10              | 64QAM      | 1       | 0         | 20.88                    | 20.86                       | 21.10                     | 22                     | 2           |
| 10              | 64QAM      | 1       | 25        | 20.88                    | 20.92                       | 21.04                     |                        |             |
| 10              | 64QAM      | 1       | 49        | 20.80                    | 20.83                       | 21.07                     |                        |             |
| 10              | 64QAM      | 25      | 0         | 19.79                    | 19.82                       | 19.96                     | 21                     | 3           |
| 10              | 64QAM      | 25      | 12        | 19.77                    | 19.84                       | 19.97                     |                        |             |
| 10              | 64QAM      | 25      | 25        | 19.75                    | 19.74                       | 19.88                     |                        |             |
| 10              | 64QAM      | 50      | 0         | 19.76                    | 19.79                       | 19.94                     |                        |             |
| Channel         |            |         |           | 20425                    | 20525                       | 20625                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 826.5                    | 836.5                       | 846.5                     |                        |             |
| 5               | QPSK       | 1       | 0         | 22.63                    | 22.56                       | 22.84                     | 24                     | 0           |
| 5               | QPSK       | 1       | 12        | 22.66                    | 22.63                       | 22.83                     |                        |             |
| 5               | QPSK       | 1       | 24        | 22.60                    | 22.57                       | 22.81                     |                        |             |
| 5               | QPSK       | 12      | 0         | 21.69                    | 21.68                       | 21.85                     | 23                     | 1           |
| 5               | QPSK       | 12      | 7         | 21.72                    | 21.68                       | 21.88                     |                        |             |
| 5               | QPSK       | 12      | 13        | 21.65                    | 21.67                       | 21.82                     |                        |             |
| 5               | QPSK       | 25      | 0         | 21.65                    | 21.68                       | 21.85                     |                        |             |
| 5               | 16QAM      | 1       | 0         | 22.02                    | 21.94                       | 22.18                     | 23                     | 1           |
| 5               | 16QAM      | 1       | 12        | 22.03                    | 22.00                       | 22.16                     |                        |             |
| 5               | 16QAM      | 1       | 24        | 21.93                    | 21.99                       | 22.23                     |                        |             |
| 5               | 16QAM      | 12      | 0         | 20.80                    | 20.80                       | 20.99                     | 22                     | 2           |
| 5               | 16QAM      | 12      | 7         | 20.82                    | 20.83                       | 21.03                     |                        |             |
| 5               | 16QAM      | 12      | 13        | 20.77                    | 20.78                       | 20.94                     |                        |             |
| 5               | 16QAM      | 25      | 0         | 20.77                    | 20.79                       | 20.97                     |                        |             |
| 5               | 64QAM      | 1       | 0         | 20.92                    | 20.79                       | 21.09                     | 22                     | 2           |
| 5               | 64QAM      | 1       | 12        | 20.91                    | 20.91                       | 21.07                     |                        |             |
| 5               | 64QAM      | 1       | 24        | 20.86                    | 20.88                       | 21.12                     |                        |             |
| 5               | 64QAM      | 12      | 0         | 19.80                    | 19.81                       | 19.96                     | 21                     | 3           |
| 5               | 64QAM      | 12      | 7         | 19.83                    | 19.83                       | 20.00                     |                        |             |
| 5               | 64QAM      | 12      | 13        | 19.77                    | 19.76                       | 19.93                     |                        |             |
| 5               | 64QAM      | 25      | 0         | 19.79                    | 19.80                       | 19.98                     |                        |             |
| Channel         |            |         |           | 20415                    | 20525                       | 20635                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 825.5                    | 836.5                       | 847.5                     |                        |             |
| 3               | QPSK       | 1       | 0         | 22.64                    | 22.61                       | 22.80                     | 24                     | 0           |
| 3               | QPSK       | 1       | 8         | 22.60                    | 22.57                       | 22.84                     |                        |             |
| 3               | QPSK       | 1       | 14        | 22.58                    | 22.55                       | 22.85                     |                        |             |
| 3               | QPSK       | 8       | 0         | 21.65                    | 21.63                       | 21.85                     | 23                     | 1           |
| 3               | QPSK       | 8       | 4         | 21.66                    | 21.67                       | 21.85                     |                        |             |



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|                 |       |    |    |       |       |       |                        |             |
|-----------------|-------|----|----|-------|-------|-------|------------------------|-------------|
| 3               | QPSK  | 8  | 7  | 21.65 | 21.64 | 21.93 |                        |             |
| 3               | QPSK  | 15 | 0  | 21.64 | 21.62 | 21.84 |                        |             |
| 3               | 16QAM | 1  | 0  | 22.00 | 21.98 | 22.14 |                        |             |
| 3               | 16QAM | 1  | 8  | 21.95 | 22.01 | 22.20 | 23                     | 1           |
| 3               | 16QAM | 1  | 14 | 21.95 | 21.97 | 22.18 |                        |             |
| 3               | 16QAM | 8  | 0  | 20.81 | 20.81 | 21.00 |                        |             |
| 3               | 16QAM | 8  | 4  | 20.84 | 20.84 | 21.02 | 22                     | 2           |
| 3               | 16QAM | 8  | 7  | 20.81 | 20.80 | 21.09 |                        |             |
| 3               | 16QAM | 15 | 0  | 20.76 | 20.75 | 20.95 |                        |             |
| 3               | 64QAM | 1  | 0  | 20.87 | 20.87 | 21.06 | 22                     | 2           |
| 3               | 64QAM | 1  | 8  | 20.88 | 20.87 | 21.12 |                        |             |
| 3               | 64QAM | 1  | 14 | 20.87 | 20.87 | 21.11 |                        |             |
| 3               | 64QAM | 8  | 0  | 19.78 | 19.78 | 19.96 | 21                     | 3           |
| 3               | 64QAM | 8  | 4  | 19.80 | 19.80 | 19.96 |                        |             |
| 3               | 64QAM | 8  | 7  | 19.78 | 19.78 | 20.05 |                        |             |
| 3               | 64QAM | 15 | 0  | 19.74 | 19.73 | 19.94 |                        |             |
| Channel         |       |    |    | 20407 | 20525 | 20643 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 824.7 | 836.5 | 848.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 22.62 | 22.55 | 22.84 | 24                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 22.65 | 22.63 | 22.81 |                        |             |
| 1.4             | QPSK  | 1  | 5  | 22.58 | 22.55 | 22.83 |                        |             |
| 1.4             | QPSK  | 3  | 0  | 22.63 | 22.60 | 22.86 |                        |             |
| 1.4             | QPSK  | 3  | 1  | 22.67 | 22.64 | 22.81 |                        |             |
| 1.4             | QPSK  | 3  | 3  | 22.61 | 22.61 | 22.84 |                        |             |
| 1.4             | QPSK  | 6  | 0  | 21.63 | 21.61 | 21.91 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 0  | 21.95 | 21.93 | 22.21 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 3  | 21.97 | 22.05 | 22.32 |                        |             |
| 1.4             | 16QAM | 1  | 5  | 21.94 | 21.93 | 22.22 |                        |             |
| 1.4             | 16QAM | 3  | 0  | 21.74 | 21.75 | 21.99 |                        |             |
| 1.4             | 16QAM | 3  | 1  | 21.80 | 21.76 | 22.00 |                        |             |
| 1.4             | 16QAM | 3  | 3  | 21.71 | 21.72 | 21.94 |                        |             |
| 1.4             | 16QAM | 6  | 0  | 20.80 | 20.76 | 21.04 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 0  | 20.85 | 20.85 | 21.11 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 3  | 20.94 | 20.93 | 21.19 |                        |             |
| 1.4             | 64QAM | 1  | 5  | 20.84 | 20.79 | 21.08 |                        |             |
| 1.4             | 64QAM | 3  | 0  | 20.80 | 20.79 | 21.03 |                        |             |
| 1.4             | 64QAM | 3  | 1  | 20.85 | 20.78 | 21.03 |                        |             |
| 1.4             | 64QAM | 3  | 3  | 20.77 | 20.78 | 21.01 |                        |             |
| 1.4             | 64QAM | 6  | 0  | 19.73 | 19.75 | 20.01 | 21                     | 3           |



**<LTE Band 7>**

| 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 20850                    | 21100                       | 21350                     |                        |             |
| Frequency (MHz) |            |         |           | 2510                     | 2535                        | 2560                      |                        |             |
| 20              | QPSK       | 1       | 0         | 23.11                    | 23.09                       | 23.16                     |                        |             |
| 20              | QPSK       | 1       | 49        | 23.08                    | 22.97                       | 23.05                     | 24                     | 0           |
| 20              | QPSK       | 1       | 99        | 23.09                    | 23.07                       | 23.03                     |                        |             |
| 20              | QPSK       | 50      | 0         | 22.08                    | 22.10                       | 22.14                     |                        |             |
| 20              | QPSK       | 50      | 24        | 22.06                    | 22.04                       | 22.08                     | 23                     | 1           |
| 20              | QPSK       | 50      | 50        | 22.04                    | 22.09                       | 22.10                     |                        |             |
| 20              | QPSK       | 100     | 0         | 22.05                    | 22.04                       | 22.10                     |                        |             |
| 20              | 16QAM      | 1       | 0         | 22.43                    | 22.40                       | 22.40                     | 23                     | 1           |
| 20              | 16QAM      | 1       | 49        | 22.50                    | 22.33                       | 22.39                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 22.57                    | 22.44                       | 22.42                     |                        |             |
| 20              | 16QAM      | 50      | 0         | 21.16                    | 21.16                       | 21.15                     | 22                     | 2           |
| 20              | 16QAM      | 50      | 24        | 21.19                    | 21.16                       | 21.22                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 21.27                    | 21.20                       | 21.19                     |                        |             |
| 20              | 16QAM      | 100     | 0         | 21.19                    | 21.14                       | 21.17                     | 22                     | 2           |
| 20              | 64QAM      | 1       | 0         | 21.35                    | 21.32                       | 21.29                     |                        |             |
| 20              | 64QAM      | 1       | 49        | 21.40                    | 21.26                       | 21.31                     |                        |             |
| 20              | 64QAM      | 1       | 99        | 21.44                    | 21.33                       | 21.34                     | 21                     | 3           |
| 20              | 64QAM      | 50      | 0         | 20.18                    | 20.13                       | 20.16                     |                        |             |
| 20              | 64QAM      | 50      | 24        | 20.18                    | 20.17                       | 20.21                     |                        |             |
| 20              | 64QAM      | 50      | 50        | 20.28                    | 20.15                       | 20.19                     | 21                     | 3           |
| 20              | 64QAM      | 100     | 0         | 20.21                    | 20.17                       | 20.20                     |                        |             |
| Channel         |            |         |           | 20825                    | 21100                       | 21375                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 2507.5                   | 2535                        | 2562.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 23.09                    | 23.06                       | 23.04                     |                        |             |
| 15              | QPSK       | 1       | 37        | 23.12                    | 22.99                       | 23.04                     | 24                     | 0           |
| 15              | QPSK       | 1       | 74        | 23.13                    | 23.10                       | 23.13                     |                        |             |
| 15              | QPSK       | 36      | 0         | 22.08                    | 22.06                       | 22.04                     | 23                     | 1           |
| 15              | QPSK       | 36      | 20        | 22.09                    | 22.10                       | 22.12                     |                        |             |
| 15              | QPSK       | 36      | 39        | 22.21                    | 22.03                       | 22.08                     |                        |             |
| 15              | QPSK       | 75      | 0         | 22.11                    | 22.08                       | 22.10                     | 23                     | 1           |
| 15              | 16QAM      | 1       | 0         | 22.43                    | 22.43                       | 22.41                     |                        |             |
| 15              | 16QAM      | 1       | 37        | 22.51                    | 22.34                       | 22.40                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 22.61                    | 22.46                       | 22.50                     | 22                     | 2           |
| 15              | 16QAM      | 36      | 0         | 21.17                    | 21.09                       | 21.16                     |                        |             |
| 15              | 16QAM      | 36      | 20        | 21.21                    | 21.15                       | 21.21                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 21.33                    | 21.17                       | 21.21                     | 22                     | 2           |
| 15              | 16QAM      | 75      | 0         | 21.23                    | 21.13                       | 21.16                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 21.39                    | 21.37                       | 21.35                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 21.44                    | 21.23                       | 21.29                     | 22                     | 2           |
| 15              | 64QAM      | 1       | 74        | 21.48                    | 21.34                       | 21.36                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 20.18                    | 20.10                       | 20.17                     |                        |             |
| 15              | 64QAM      | 36      | 20        | 20.22                    | 20.14                       | 20.19                     | 21                     | 3           |
| 15              | 64QAM      | 36      | 39        | 20.31                    | 20.18                       | 20.20                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 20.21                    | 20.12                       | 20.17                     |                        |             |
| Channel         |            |         |           | 20800                    | 21100                       | 21400                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 2505                     | 2535                        | 2565                      |                        |             |
| 10              | QPSK       | 1       | 0         | 23.11                    | 22.99                       | 22.97                     |                        |             |
| 10              | QPSK       | 1       | 25        | 23.02                    | 22.95                       | 23.02                     | 24                     | 0           |
| 10              | QPSK       | 1       | 49        | 23.15                    | 23.03                       | 23.06                     |                        |             |
| 10              | QPSK       | 25      | 0         | 22.02                    | 22.00                       | 22.03                     | 23                     | 1           |
| 10              | QPSK       | 25      | 12        | 22.10                    | 22.01                       | 22.06                     |                        |             |



# FCC SAR TEST REPORT

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|                 |       |    |    |        |       |        |                        |             |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| 10              | QPSK  | 25 | 25 | 22.09  | 22.03 | 22.09  |                        |             |
| 10              | QPSK  | 50 | 0  | 22.08  | 22.02 | 22.02  |                        |             |
| 10              | 16QAM | 1  | 0  | 22.44  | 22.27 | 22.31  |                        |             |
| 10              | 16QAM | 1  | 25 | 22.40  | 22.34 | 22.34  | 23                     | 1           |
| 10              | 16QAM | 1  | 49 | 22.54  | 22.41 | 22.45  |                        |             |
| 10              | 16QAM | 25 | 0  | 21.15  | 21.12 | 21.16  |                        |             |
| 10              | 16QAM | 25 | 12 | 21.19  | 21.14 | 21.15  | 22                     | 2           |
| 10              | 16QAM | 25 | 25 | 21.15  | 21.16 | 21.13  |                        |             |
| 10              | 16QAM | 50 | 0  | 21.20  | 21.14 | 21.15  |                        |             |
| 10              | 64QAM | 1  | 0  | 21.36  | 21.21 | 21.23  | 22                     | 2           |
| 10              | 64QAM | 1  | 25 | 21.27  | 21.28 | 21.27  |                        |             |
| 10              | 64QAM | 1  | 49 | 21.43  | 21.26 | 21.34  |                        |             |
| 10              | 64QAM | 25 | 0  | 20.14  | 20.13 | 20.17  | 21                     | 3           |
| 10              | 64QAM | 25 | 12 | 20.18  | 20.16 | 20.15  |                        |             |
| 10              | 64QAM | 25 | 25 | 20.15  | 20.15 | 20.12  |                        |             |
| 10              | 64QAM | 50 | 0  | 20.19  | 20.13 | 20.14  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Channel         |       |    |    | 20775  | 21100 | 21425  |                        |             |
| Frequency (MHz) |       |    |    | 2502.5 | 2535  | 2567.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 23.11  | 22.96 | 22.97  | 24                     | 0           |
| 5               | QPSK  | 1  | 12 | 23.03  | 22.96 | 22.99  |                        |             |
| 5               | QPSK  | 1  | 24 | 23.04  | 22.99 | 23.04  |                        |             |
| 5               | QPSK  | 12 | 0  | 22.09  | 22.00 | 22.01  | 23                     | 1           |
| 5               | QPSK  | 12 | 7  | 22.08  | 22.03 | 22.04  |                        |             |
| 5               | QPSK  | 12 | 13 | 22.08  | 22.04 | 22.06  |                        |             |
| 5               | QPSK  | 25 | 0  | 22.07  | 22.01 | 22.02  | 23                     | 1           |
| 5               | 16QAM | 1  | 0  | 22.45  | 22.32 | 22.32  |                        |             |
| 5               | 16QAM | 1  | 12 | 22.38  | 22.31 | 22.32  |                        |             |
| 5               | 16QAM | 1  | 24 | 22.39  | 22.36 | 22.35  | 22                     | 2           |
| 5               | 16QAM | 12 | 0  | 21.19  | 21.13 | 21.10  |                        |             |
| 5               | 16QAM | 12 | 7  | 21.24  | 21.16 | 21.18  |                        |             |
| 5               | 16QAM | 12 | 13 | 21.19  | 21.15 | 21.14  | 22                     | 2           |
| 5               | 16QAM | 25 | 0  | 21.18  | 21.08 | 21.12  |                        |             |
| 5               | 64QAM | 1  | 0  | 21.34  | 21.18 | 21.24  |                        |             |
| 5               | 64QAM | 1  | 12 | 21.28  | 21.22 | 21.24  | 22                     | 2           |
| 5               | 64QAM | 1  | 24 | 21.29  | 21.25 | 21.24  |                        |             |
| 5               | 64QAM | 12 | 0  | 20.18  | 20.10 | 20.10  |                        |             |
| 5               | 64QAM | 12 | 7  | 20.22  | 20.15 | 20.17  | 21                     | 3           |
| 5               | 64QAM | 12 | 13 | 20.19  | 20.14 | 20.12  |                        |             |
| 5               | 64QAM | 25 | 0  | 20.17  | 20.11 | 20.12  |                        |             |



**<LTE Band 12>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 23060                 | 23095                    | 23130                  |                     |          |
| Frequency (MHz) |            |         |           | 704                   | 707.5                    | 711                    |                     |          |
| 10              | QPSK       | 1       | 0         | 22.53                 | 22.47                    | 22.55                  |                     |          |
| 10              | QPSK       | 1       | 25        | 22.73                 | 22.58                    | 22.56                  | 24                  | 0        |
| 10              | QPSK       | 1       | 49        | 22.58                 | 22.55                    | 22.62                  |                     |          |
| 10              | QPSK       | 25      | 0         | 21.62                 | 21.61                    | 21.59                  |                     |          |
| 10              | QPSK       | 25      | 12        | 21.64                 | 21.62                    | 21.60                  | 23                  | 1        |
| 10              | QPSK       | 25      | 25        | 21.66                 | 21.62                    | 21.53                  |                     |          |
| 10              | QPSK       | 50      | 0         | 21.65                 | 21.59                    | 21.57                  |                     |          |
| 10              | 16QAM      | 1       | 0         | 21.87                 | 21.86                    | 21.91                  | 23                  | 1        |
| 10              | 16QAM      | 1       | 25        | 22.03                 | 21.96                    | 21.92                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 21.98                 | 21.91                    | 21.95                  |                     |          |
| 10              | 16QAM      | 25      | 0         | 20.75                 | 20.72                    | 20.69                  | 22                  | 2        |
| 10              | 16QAM      | 25      | 12        | 20.77                 | 20.77                    | 20.69                  |                     |          |
| 10              | 16QAM      | 25      | 25        | 20.75                 | 20.72                    | 20.69                  |                     |          |
| 10              | 16QAM      | 50      | 0         | 20.79                 | 20.74                    | 20.66                  | 22                  | 2        |
| 10              | 64QAM      | 1       | 0         | 20.72                 | 20.75                    | 20.79                  |                     |          |
| 10              | 64QAM      | 1       | 25        | 20.90                 | 20.85                    | 20.82                  |                     |          |
| 10              | 64QAM      | 1       | 49        | 20.87                 | 20.82                    | 20.85                  | 21                  | 3        |
| 10              | 64QAM      | 25      | 0         | 19.73                 | 19.73                    | 19.71                  |                     |          |
| 10              | 64QAM      | 25      | 12        | 19.78                 | 19.77                    | 19.71                  |                     |          |
| 10              | 64QAM      | 25      | 25        | 19.76                 | 19.71                    | 19.70                  | 21                  | 3        |
| 10              | 64QAM      | 50      | 0         | 19.76                 | 19.71                    | 19.66                  |                     |          |
| Channel         |            |         |           | 23035                 | 23095                    | 23155                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 701.5                 | 707.5                    | 713.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 22.54                 | 22.56                    | 22.50                  |                     |          |
| 5               | QPSK       | 1       | 12        | 22.54                 | 22.55                    | 22.60                  | 24                  | 0        |
| 5               | QPSK       | 1       | 24        | 22.60                 | 22.57                    | 22.56                  |                     |          |
| 5               | QPSK       | 12      | 0         | 21.55                 | 21.59                    | 21.51                  | 23                  | 1        |
| 5               | QPSK       | 12      | 7         | 21.58                 | 21.61                    | 21.71                  |                     |          |
| 5               | QPSK       | 12      | 13        | 21.66                 | 21.59                    | 21.61                  |                     |          |
| 5               | QPSK       | 25      | 0         | 21.68                 | 21.60                    | 21.55                  | 23                  | 1        |
| 5               | 16QAM      | 1       | 0         | 21.84                 | 21.95                    | 21.88                  |                     |          |
| 5               | 16QAM      | 1       | 12        | 21.93                 | 21.94                    | 21.94                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 21.98                 | 21.93                    | 21.93                  | 22                  | 2        |
| 5               | 16QAM      | 12      | 0         | 20.68                 | 20.71                    | 20.68                  |                     |          |
| 5               | 16QAM      | 12      | 7         | 20.74                 | 20.76                    | 20.81                  |                     |          |
| 5               | 16QAM      | 12      | 13        | 20.78                 | 20.72                    | 20.77                  | 22                  | 2        |
| 5               | 16QAM      | 25      | 0         | 20.78                 | 20.71                    | 20.64                  |                     |          |
| 5               | 64QAM      | 1       | 0         | 20.75                 | 20.83                    | 20.83                  |                     |          |
| 5               | 64QAM      | 1       | 12        | 20.83                 | 20.85                    | 20.88                  | 22                  | 2        |
| 5               | 64QAM      | 1       | 24        | 20.85                 | 20.81                    | 20.82                  |                     |          |
| 5               | 64QAM      | 12      | 0         | 19.67                 | 19.69                    | 19.66                  |                     |          |
| 5               | 64QAM      | 12      | 7         | 19.70                 | 19.72                    | 19.79                  | 21                  | 3        |
| 5               | 64QAM      | 12      | 13        | 19.78                 | 19.69                    | 19.78                  |                     |          |
| 5               | 64QAM      | 25      | 0         | 19.78                 | 19.72                    | 19.65                  |                     |          |
| Channel         |            |         |           | 23025                 | 23095                    | 23165                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 700.5                 | 707.5                    | 714.5                  |                     |          |
| 3               | QPSK       | 1       | 0         | 22.53                 | 22.54                    | 22.59                  |                     |          |
| 3               | QPSK       | 1       | 8         | 22.52                 | 22.54                    | 22.57                  | 24                  | 0        |
| 3               | QPSK       | 1       | 14        | 22.53                 | 22.54                    | 22.56                  |                     |          |
| 3               | QPSK       | 8       | 0         | 21.58                 | 21.56                    | 21.59                  | 23                  | 1        |
| 3               | QPSK       | 8       | 4         | 21.58                 | 21.63                    | 21.66                  |                     |          |



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|                 |       |    |    |       |       |       |                        |             |
|-----------------|-------|----|----|-------|-------|-------|------------------------|-------------|
| 3               | QPSK  | 8  | 7  | 21.52 | 21.56 | 21.59 |                        |             |
| 3               | QPSK  | 15 | 0  | 21.55 | 21.60 | 21.63 |                        |             |
| 3               | 16QAM | 1  | 0  | 21.88 | 21.90 | 21.93 |                        |             |
| 3               | 16QAM | 1  | 8  | 21.88 | 21.94 | 21.96 | 23                     | 1           |
| 3               | 16QAM | 1  | 14 | 21.86 | 21.89 | 21.90 |                        |             |
| 3               | 16QAM | 8  | 0  | 20.71 | 20.78 | 20.81 |                        |             |
| 3               | 16QAM | 8  | 4  | 20.74 | 20.76 | 20.79 | 22                     | 2           |
| 3               | 16QAM | 8  | 7  | 20.73 | 20.77 | 20.80 |                        |             |
| 3               | 16QAM | 15 | 0  | 20.65 | 20.70 | 20.77 |                        |             |
| 3               | 64QAM | 1  | 0  | 20.76 | 20.80 | 20.84 | 22                     | 2           |
| 3               | 64QAM | 1  | 8  | 20.76 | 20.81 | 20.82 |                        |             |
| 3               | 64QAM | 1  | 14 | 20.79 | 20.80 | 20.81 |                        |             |
| 3               | 64QAM | 8  | 0  | 19.69 | 19.70 | 19.77 | 21                     | 3           |
| 3               | 64QAM | 8  | 4  | 19.69 | 19.74 | 19.76 |                        |             |
| 3               | 64QAM | 8  | 7  | 19.71 | 19.72 | 19.75 |                        |             |
| 3               | 64QAM | 15 | 0  | 19.65 | 19.69 | 19.76 |                        |             |
| Channel         |       |    |    | 23017 | 23095 | 23173 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 699.7 | 707.5 | 715.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 22.49 | 22.51 | 22.53 | 24                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 22.57 | 22.59 | 22.60 |                        |             |
| 1.4             | QPSK  | 1  | 5  | 22.49 | 22.50 | 22.54 |                        |             |
| 1.4             | QPSK  | 3  | 0  | 22.57 | 22.57 | 22.56 |                        |             |
| 1.4             | QPSK  | 3  | 1  | 22.57 | 22.58 | 22.62 |                        |             |
| 1.4             | QPSK  | 3  | 3  | 22.55 | 22.55 | 22.60 |                        |             |
| 1.4             | QPSK  | 6  | 0  | 21.54 | 21.55 | 21.56 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 0  | 21.82 | 21.89 | 21.86 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 3  | 21.91 | 21.95 | 21.95 |                        |             |
| 1.4             | 16QAM | 1  | 5  | 21.78 | 21.89 | 21.88 |                        |             |
| 1.4             | 16QAM | 3  | 0  | 21.61 | 21.68 | 21.66 |                        |             |
| 1.4             | 16QAM | 3  | 1  | 21.68 | 21.70 | 21.72 |                        |             |
| 1.4             | 16QAM | 3  | 3  | 21.63 | 21.65 | 21.68 |                        |             |
| 1.4             | 16QAM | 6  | 0  | 20.72 | 20.76 | 20.79 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 0  | 20.72 | 20.81 | 20.82 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 3  | 20.75 | 20.85 | 20.86 |                        |             |
| 1.4             | 64QAM | 1  | 5  | 20.73 | 20.80 | 20.77 |                        |             |
| 1.4             | 64QAM | 3  | 0  | 20.63 | 20.73 | 20.70 |                        |             |
| 1.4             | 64QAM | 3  | 1  | 20.69 | 20.73 | 20.79 |                        |             |
| 1.4             | 64QAM | 3  | 3  | 20.68 | 20.71 | 20.75 |                        |             |
| 1.4             | 64QAM | 6  | 0  | 19.64 | 19.70 | 19.71 | 21                     | 3           |



**<LTE Band 17>**

| 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 23780                    | 23790                       | 23800                     |                        |             |
| Frequency (MHz) |            |         |           | 709                      | 710                         | 711                       |                        |             |
| 10              | QPSK       | 1       | 0         | 22.54                    | 22.56                       | 22.62                     |                        |             |
| 10              | QPSK       | 1       | 25        | 22.65                    | 22.61                       | 22.62                     | 24                     | 0           |
| 10              | QPSK       | 1       | 49        | 22.72                    | 22.71                       | 22.71                     |                        |             |
| 10              | QPSK       | 25      | 0         | 21.69                    | 21.66                       | 21.65                     |                        |             |
| 10              | QPSK       | 25      | 12        | 21.72                    | 21.70                       | 21.70                     | 23                     | 1           |
| 10              | QPSK       | 25      | 25        | 21.67                    | 21.62                       | 21.62                     |                        |             |
| 10              | QPSK       | 50      | 0         | 21.70                    | 21.69                       | 21.66                     |                        |             |
| 10              | 16QAM      | 1       | 0         | 21.89                    | 21.93                       | 21.97                     | 23                     | 1           |
| 10              | 16QAM      | 1       | 25        | 22.02                    | 22.00                       | 21.96                     |                        |             |
| 10              | 16QAM      | 1       | 49        | 22.13                    | 22.11                       | 22.05                     |                        |             |
| 10              | 16QAM      | 25      | 0         | 20.81                    | 20.77                       | 20.78                     | 22                     | 2           |
| 10              | 16QAM      | 25      | 12        | 20.81                    | 20.82                       | 20.77                     |                        |             |
| 10              | 16QAM      | 25      | 25        | 20.76                    | 20.79                       | 20.77                     |                        |             |
| 10              | 16QAM      | 50      | 0         | 20.79                    | 20.78                       | 20.76                     | 22                     | 2           |
| 10              | 64QAM      | 1       | 0         | 20.82                    | 20.80                       | 20.90                     |                        |             |
| 10              | 64QAM      | 1       | 25        | 20.91                    | 20.89                       | 20.87                     |                        |             |
| 10              | 64QAM      | 1       | 49        | 21.01                    | 20.98                       | 20.98                     | 21                     | 3           |
| 10              | 64QAM      | 25      | 0         | 19.82                    | 19.77                       | 19.80                     |                        |             |
| 10              | 64QAM      | 25      | 12        | 19.84                    | 19.83                       | 19.79                     |                        |             |
| 10              | 64QAM      | 25      | 25        | 19.78                    | 19.78                       | 19.75                     | 21                     | 3           |
| 10              | 64QAM      | 50      | 0         | 19.79                    | 19.78                       | 19.75                     |                        |             |
| Channel         |            |         |           | 23755                    | 23790                       | 23825                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 706.5                    | 710                         | 713.5                     |                        |             |
| 5               | QPSK       | 1       | 0         | 22.55                    | 22.53                       | 22.60                     |                        |             |
| 5               | QPSK       | 1       | 12        | 22.67                    | 22.60                       | 22.61                     | 24                     | 0           |
| 5               | QPSK       | 1       | 24        | 22.65                    | 22.69                       | 22.69                     |                        |             |
| 5               | QPSK       | 12      | 0         | 21.72                    | 21.66                       | 21.63                     | 23                     | 1           |
| 5               | QPSK       | 12      | 7         | 21.73                    | 21.68                       | 21.67                     |                        |             |
| 5               | QPSK       | 12      | 13        | 21.69                    | 21.66                       | 21.61                     |                        |             |
| 5               | QPSK       | 25      | 0         | 21.68                    | 21.66                       | 21.66                     | 23                     | 1           |
| 5               | 16QAM      | 1       | 0         | 21.95                    | 21.86                       | 21.98                     |                        |             |
| 5               | 16QAM      | 1       | 12        | 22.07                    | 21.97                       | 22.01                     |                        |             |
| 5               | 16QAM      | 1       | 24        | 21.98                    | 22.06                       | 22.02                     | 22                     | 2           |
| 5               | 16QAM      | 12      | 0         | 20.82                    | 20.79                       | 20.78                     |                        |             |
| 5               | 16QAM      | 12      | 7         | 20.85                    | 20.81                       | 20.81                     |                        |             |
| 5               | 16QAM      | 12      | 13        | 20.85                    | 20.78                       | 20.75                     | 22                     | 2           |
| 5               | 16QAM      | 25      | 0         | 20.80                    | 20.78                       | 20.76                     |                        |             |
| 5               | 64QAM      | 1       | 0         | 20.82                    | 20.78                       | 20.83                     |                        |             |
| 5               | 64QAM      | 1       | 12        | 20.95                    | 20.88                       | 20.87                     | 22                     | 2           |
| 5               | 64QAM      | 1       | 24        | 20.90                    | 20.95                       | 20.91                     |                        |             |
| 5               | 64QAM      | 12      | 0         | 19.82                    | 19.78                       | 19.77                     |                        |             |
| 5               | 64QAM      | 12      | 7         | 19.85                    | 19.82                       | 19.78                     | 21                     | 3           |
| 5               | 64QAM      | 12      | 13        | 19.84                    | 19.78                       | 19.75                     |                        |             |
| 5               | 64QAM      | 25      | 0         | 19.79                    | 19.78                       | 19.75                     |                        |             |



**<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) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 132072                | 132322                   | 132572                 |                     |          |
| Frequency (MHz) |            |         |           | 1720                  | 1745                     | 1770                   |                     |          |
| 20              | QPSK       | 1       | 0         | 22.86                 | 22.87                    | 22.99                  |                     |          |
| 20              | QPSK       | 1       | 49        | 22.79                 | 22.84                    | 22.96                  | 24                  | 0        |
| 20              | QPSK       | 1       | 99        | 22.70                 | 22.79                    | 22.84                  |                     |          |
| 20              | QPSK       | 50      | 0         | 21.87                 | 21.91                    | 21.97                  |                     |          |
| 20              | QPSK       | 50      | 24        | 21.84                 | 21.89                    | 21.99                  | 23                  | 1        |
| 20              | QPSK       | 50      | 50        | 21.77                 | 21.82                    | 21.95                  |                     |          |
| 20              | QPSK       | 100     | 0         | 21.80                 | 21.87                    | 21.97                  |                     |          |
| 20              | 16QAM      | 1       | 0         | 22.22                 | 22.36                    | 22.38                  | 23                  | 1        |
| 20              | 16QAM      | 1       | 49        | 22.17                 | 22.34                    | 22.43                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 22.12                 | 22.19                    | 22.26                  |                     |          |
| 20              | 16QAM      | 50      | 0         | 20.99                 | 21.08                    | 21.14                  | 22                  | 2        |
| 20              | 16QAM      | 50      | 24        | 20.97                 | 21.05                    | 21.13                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 20.89                 | 21.01                    | 21.07                  |                     |          |
| 20              | 16QAM      | 100     | 0         | 20.89                 | 21.01                    | 21.11                  | 22                  | 2        |
| 20              | 64QAM      | 1       | 0         | 21.12                 | 21.29                    | 21.30                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 21.12                 | 21.20                    | 21.28                  |                     |          |
| 20              | 64QAM      | 1       | 99        | 20.99                 | 21.08                    | 21.16                  | 21                  | 3        |
| 20              | 64QAM      | 50      | 0         | 19.95                 | 20.05                    | 20.14                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 19.95                 | 20.03                    | 20.13                  |                     |          |
| 20              | 64QAM      | 50      | 50        | 19.90                 | 20.00                    | 20.08                  | 21                  | 3        |
| 20              | 64QAM      | 100     | 0         | 19.94                 | 20.08                    | 20.11                  |                     |          |
| Channel         |            |         |           | 132047                | 132322                   | 132597                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1717.5                | 1745                     | 1772.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 22.90                 | 22.95                    | 22.91                  |                     |          |
| 15              | QPSK       | 1       | 37        | 22.82                 | 22.92                    | 22.96                  | 24                  | 0        |
| 15              | QPSK       | 1       | 74        | 22.78                 | 22.82                    | 22.90                  |                     |          |
| 15              | QPSK       | 36      | 0         | 21.91                 | 21.97                    | 22.06                  | 23                  | 1        |
| 15              | QPSK       | 36      | 20        | 21.91                 | 22.00                    | 22.05                  |                     |          |
| 15              | QPSK       | 36      | 39        | 21.84                 | 21.92                    | 21.97                  |                     |          |
| 15              | QPSK       | 75      | 0         | 21.87                 | 21.93                    | 22.02                  | 23                  | 1        |
| 15              | 16QAM      | 1       | 0         | 22.37                 | 22.45                    | 22.43                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 22.30                 | 22.40                    | 22.39                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 22.23                 | 22.28                    | 22.33                  | 22                  | 2        |
| 15              | 16QAM      | 36      | 0         | 21.03                 | 21.12                    | 21.18                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 21.05                 | 21.13                    | 21.19                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 21.00                 | 21.09                    | 21.15                  | 22                  | 2        |
| 15              | 16QAM      | 75      | 0         | 21.02                 | 21.07                    | 21.12                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 21.25                 | 21.28                    | 21.32                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 21.14                 | 21.23                    | 21.28                  | 22                  | 2        |
| 15              | 64QAM      | 1       | 74        | 21.07                 | 21.14                    | 21.20                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 20.06                 | 20.12                    | 20.17                  | 21                  | 3        |
| 15              | 64QAM      | 36      | 20        | 20.06                 | 20.16                    | 20.18                  |                     |          |
| 15              | 64QAM      | 36      | 39        | 19.99                 | 20.08                    | 20.12                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 20.00                 | 20.09                    | 20.17                  | Tune-up limit (dBm) | MPR (dB) |
| Channel         |            |         |           | 132022                | 132322                   | 132622                 |                     |          |
| Frequency (MHz) |            |         |           | 1715                  | 1745                     | 1775                   |                     |          |
| 10              | QPSK       | 1       | 0         | 22.88                 | 22.94                    | 22.93                  | 24                  | 0        |
| 10              | QPSK       | 1       | 25        | 22.64                 | 22.91                    | 22.91                  |                     |          |
| 10              | QPSK       | 1       | 49        | 22.84                 | 22.88                    | 22.92                  |                     |          |
| 10              | QPSK       | 25      | 0         | 21.90                 | 21.94                    | 22.03                  | 23                  | 1        |
| 10              | QPSK       | 25      | 12        | 21.89                 | 21.96                    | 22.04                  |                     |          |



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|                 |       |    |    |        |        |        |                        |             |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| 10              | QPSK  | 25 | 25 | 21.86  | 21.92  | 22.01  |                        |             |
| 10              | QPSK  | 50 | 0  | 21.90  | 21.95  | 22.00  |                        |             |
| 10              | 16QAM | 1  | 0  | 22.29  | 22.44  | 22.46  |                        |             |
| 10              | 16QAM | 1  | 25 | 22.27  | 22.34  | 22.44  | 23                     | 1           |
| 10              | 16QAM | 1  | 49 | 22.19  | 22.30  | 22.30  |                        |             |
| 10              | 16QAM | 25 | 0  | 21.02  | 21.10  | 21.17  |                        |             |
| 10              | 16QAM | 25 | 12 | 21.04  | 21.11  | 21.17  | 22                     | 2           |
| 10              | 16QAM | 25 | 25 | 20.99  | 21.08  | 21.12  |                        |             |
| 10              | 16QAM | 50 | 0  | 21.02  | 21.08  | 21.14  |                        |             |
| 10              | 64QAM | 1  | 0  | 21.22  | 21.31  | 21.32  | 22                     | 2           |
| 10              | 64QAM | 1  | 25 | 21.17  | 21.28  | 21.27  |                        |             |
| 10              | 64QAM | 1  | 49 | 21.08  | 21.18  | 21.17  |                        |             |
| 10              | 64QAM | 25 | 0  | 20.02  | 20.11  | 20.18  | 21                     | 3           |
| 10              | 64QAM | 25 | 12 | 20.03  | 20.13  | 20.17  |                        |             |
| 10              | 64QAM | 25 | 25 | 19.99  | 20.07  | 20.12  |                        |             |
| 10              | 64QAM | 50 | 0  | 20.03  | 20.07  | 20.14  |                        |             |
| Channel         |       |    |    | 131997 | 132322 | 132647 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1712.5 | 1745   | 1777.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 22.83  | 22.93  | 22.93  | 24                     | 0           |
| 5               | QPSK  | 1  | 12 | 22.85  | 22.90  | 22.96  |                        |             |
| 5               | QPSK  | 1  | 24 | 22.86  | 22.84  | 22.87  |                        |             |
| 5               | QPSK  | 12 | 0  | 21.89  | 21.96  | 21.98  | 23                     | 1           |
| 5               | QPSK  | 12 | 7  | 21.93  | 21.96  | 22.00  |                        |             |
| 5               | QPSK  | 12 | 13 | 21.86  | 21.96  | 21.95  |                        |             |
| 5               | QPSK  | 25 | 0  | 21.89  | 21.92  | 21.94  |                        |             |
| 5               | 16QAM | 1  | 0  | 22.25  | 22.32  | 22.33  | 23                     | 1           |
| 5               | 16QAM | 1  | 12 | 22.30  | 22.36  | 22.36  |                        |             |
| 5               | 16QAM | 1  | 24 | 22.25  | 22.28  | 22.30  |                        |             |
| 5               | 16QAM | 12 | 0  | 21.06  | 21.15  | 21.15  | 22                     | 2           |
| 5               | 16QAM | 12 | 7  | 21.09  | 21.19  | 21.19  |                        |             |
| 5               | 16QAM | 12 | 13 | 21.03  | 21.09  | 21.14  |                        |             |
| 5               | 16QAM | 25 | 0  | 20.99  | 21.06  | 21.11  |                        |             |
| 5               | 64QAM | 1  | 0  | 21.14  | 21.33  | 21.29  | 22                     | 2           |
| 5               | 64QAM | 1  | 12 | 21.19  | 21.25  | 21.22  |                        |             |
| 5               | 64QAM | 1  | 24 | 21.16  | 21.20  | 21.12  |                        |             |
| 5               | 64QAM | 12 | 0  | 20.04  | 20.13  | 20.15  | 21                     | 3           |
| 5               | 64QAM | 12 | 7  | 20.06  | 20.16  | 20.15  |                        |             |
| 5               | 64QAM | 12 | 13 | 19.99  | 20.06  | 20.10  |                        |             |
| 5               | 64QAM | 25 | 0  | 20.00  | 20.08  | 20.12  |                        |             |
| Channel         |       |    |    | 131987 | 132322 | 132657 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1711.5 | 1745   | 1778.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 22.83  | 22.86  | 22.88  | 24                     | 0           |
| 3               | QPSK  | 1  | 8  | 22.85  | 22.88  | 22.93  |                        |             |
| 3               | QPSK  | 1  | 14 | 22.79  | 22.84  | 22.89  |                        |             |
| 3               | QPSK  | 8  | 0  | 21.90  | 21.94  | 21.97  | 23                     | 1           |
| 3               | QPSK  | 8  | 4  | 21.90  | 21.97  | 21.98  |                        |             |
| 3               | QPSK  | 8  | 7  | 21.90  | 21.91  | 21.94  |                        |             |
| 3               | QPSK  | 15 | 0  | 21.86  | 21.93  | 21.95  |                        |             |
| 3               | 16QAM | 1  | 0  | 22.24  | 22.33  | 22.32  | 23                     | 1           |
| 3               | 16QAM | 1  | 8  | 22.25  | 22.31  | 22.36  |                        |             |
| 3               | 16QAM | 1  | 14 | 22.16  | 22.23  | 22.32  |                        |             |
| 3               | 16QAM | 8  | 0  | 21.07  | 21.13  | 21.16  | 22                     | 2           |
| 3               | 16QAM | 8  | 4  | 21.11  | 21.16  | 21.19  |                        |             |
| 3               | 16QAM | 8  | 7  | 21.05  | 21.12  | 21.15  |                        |             |
| 3               | 16QAM | 15 | 0  | 21.02  | 21.04  | 21.08  |                        |             |
| 3               | 64QAM | 1  | 0  | 21.12  | 21.15  | 21.16  | 22                     | 2           |



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|                 |       |    |    |        |        |        |                        |             |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| 3               | 64QAM | 1  | 8  | 21.15  | 21.21  | 21.26  | 21                     | 3           |
| 3               | 64QAM | 1  | 14 | 21.12  | 21.17  | 21.17  |                        |             |
| 3               | 64QAM | 8  | 0  | 20.01  | 20.09  | 20.14  |                        |             |
| 3               | 64QAM | 8  | 4  | 20.03  | 20.12  | 20.16  |                        |             |
| 3               | 64QAM | 8  | 7  | 20.02  | 20.09  | 20.11  |                        |             |
| 3               | 64QAM | 15 | 0  | 19.99  | 20.03  | 20.08  |                        |             |
| Channel         |       |    |    | 131979 | 132322 | 132665 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1710.7 | 1745   | 1779.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 22.76  | 22.78  | 22.87  | 24                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 22.82  | 22.86  | 22.92  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 22.74  | 22.76  | 22.87  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 22.77  | 22.85  | 22.88  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 22.80  | 22.87  | 22.96  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 22.79  | 22.82  | 22.90  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 21.76  | 21.83  | 21.91  | 23                     | 1           |
| 1.4             | 16QAM | 1  | 0  | 22.18  | 22.26  | 22.33  | 23                     | 1           |
| 1.4             | 16QAM | 1  | 3  | 22.24  | 22.30  | 22.33  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 22.13  | 22.21  | 22.27  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 22.00  | 22.00  | 22.05  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 21.96  | 21.93  | 22.11  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 21.99  | 22.34  | 22.04  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 21.00  | 21.06  | 21.11  | 22                     | 2           |
| 1.4             | 64QAM | 1  | 0  | 21.04  | 21.16  | 21.17  | 22                     | 2           |
| 1.4             | 64QAM | 1  | 3  | 21.13  | 21.22  | 21.28  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 21.08  | 21.14  | 21.13  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 20.98  | 21.09  | 21.11  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 21.03  | 21.08  | 21.12  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 20.97  | 21.02  | 21.08  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 19.89  | 20.01  | 20.06  | 21                     | 3           |

**<Near-Body 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 18700                    | 18900                       | 19100                     |                        |             |
| Frequency (MHz) |            |         |           | 1860                     | 1880                        | 1900                      |                        |             |
| 20              | QPSK       | 1       | 0         | 20.87                    | 20.79                       | 20.85                     | 21.5                   | 0           |
| 20              | QPSK       | 1       | 49        | 20.31                    | 20.24                       | 20.41                     |                        |             |
| 20              | QPSK       | 1       | 99        | 20.08                    | 20.25                       | 20.46                     |                        |             |
| 20              | QPSK       | 50      | 0         | 20.77                    | 20.71                       | 20.75                     | 21.5                   | 0           |
| 20              | QPSK       | 50      | 24        | 20.39                    | 20.32                       | 20.49                     |                        |             |
| 20              | QPSK       | 50      | 50        | 20.22                    | 20.21                       | 20.43                     |                        |             |
| 20              | QPSK       | 100     | 0         | 20.74                    | 20.68                       | 20.72                     | 21.5                   | 0           |
| 20              | 16QAM      | 1       | 0         | 20.58                    | 20.78                       | 20.48                     |                        |             |
| 20              | 16QAM      | 1       | 49        | 20.39                    | 20.36                       | 20.64                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 20.57                    | 20.73                       | 20.61                     | 21.5                   | 0           |
| 20              | 16QAM      | 50      | 0         | 20.57                    | 20.51                       | 20.65                     |                        |             |
| 20              | 16QAM      | 50      | 24        | 20.56                    | 20.49                       | 20.64                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 20.37                    | 20.39                       | 20.64                     | 21.5                   | 0           |
| 20              | 16QAM      | 100     | 0         | 20.44                    | 20.44                       | 20.62                     |                        |             |
| 20              | 64QAM      | 1       | 0         | 20.49                    | 20.74                       | 20.39                     |                        |             |
| 20              | 64QAM      | 1       | 49        | 20.35                    | 20.29                       | 20.62                     | 21.5                   | 0           |
| 20              | 64QAM      | 1       | 99        | 20.53                    | 20.63                       | 20.59                     |                        |             |
| 20              | 64QAM      | 50      | 0         | 19.69                    | 19.91                       | 19.99                     |                        |             |
| 20              | 64QAM      | 50      | 24        | 19.71                    | 19.84                       | 19.99                     | 21                     | 0.5         |
| 20              | 64QAM      | 50      | 50        | 19.70                    | 19.85                       | 19.94                     |                        |             |
| 20              | 64QAM      | 100     | 0         | 19.85                    | 19.85                       | 20.04                     |                        |             |
| Channel         |            |         |           | 18675                    | 18900                       | 19125                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1857.5                   | 1880                        | 1902.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 20.86                    | 20.69                       | 20.85                     | 21.5                   | 0           |
| 15              | QPSK       | 1       | 37        | 20.22                    | 20.14                       | 20.32                     |                        |             |
| 15              | QPSK       | 1       | 74        | 20.03                    | 20.23                       | 20.37                     |                        |             |
| 15              | QPSK       | 36      | 0         | 20.68                    | 20.61                       | 20.65                     | 21.5                   | 0           |
| 15              | QPSK       | 36      | 20        | 20.30                    | 20.31                       | 20.41                     |                        |             |
| 15              | QPSK       | 36      | 39        | 20.22                    | 20.17                       | 20.40                     |                        |             |
| 15              | QPSK       | 75      | 0         | 20.64                    | 20.58                       | 20.66                     | 21.5                   | 0           |
| 15              | 16QAM      | 1       | 0         | 20.48                    | 20.68                       | 20.40                     |                        |             |
| 15              | 16QAM      | 1       | 37        | 20.34                    | 20.31                       | 20.63                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 20.52                    | 20.71                       | 20.58                     | 21.5                   | 0           |
| 15              | 16QAM      | 36      | 0         | 20.52                    | 20.41                       | 20.60                     |                        |             |
| 15              | 16QAM      | 36      | 20        | 20.56                    | 20.48                       | 20.60                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 20.35                    | 20.33                       | 20.54                     | 21.5                   | 0           |
| 15              | 16QAM      | 75      | 0         | 20.41                    | 20.43                       | 20.53                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 20.44                    | 20.70                       | 20.31                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 20.31                    | 20.26                       | 20.53                     | 21.5                   | 0           |
| 15              | 64QAM      | 1       | 74        | 20.52                    | 20.58                       | 20.59                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 19.66                    | 19.91                       | 19.98                     |                        |             |
| 15              | 64QAM      | 36      | 20        | 19.64                    | 19.77                       | 19.94                     | 21                     | 0.5         |
| 15              | 64QAM      | 36      | 39        | 19.70                    | 19.82                       | 19.89                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 19.80                    | 19.79                       | 20.03                     |                        |             |
| Channel         |            |         |           | 18650                    | 18900                       | 19150                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1855                     | 1880                        | 1905                      |                        |             |
| 10              | QPSK       | 1       | 0         | 20.83                    | 20.70                       | 20.80                     | 21.5                   | 0           |
| 10              | QPSK       | 1       | 25        | 20.21                    | 20.14                       | 20.37                     |                        |             |
| 10              | QPSK       | 1       | 49        | 20.00                    | 20.20                       | 20.46                     |                        |             |



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|                 |       |    |    |        |       |        |                     |          |
|-----------------|-------|----|----|--------|-------|--------|---------------------|----------|
| 10              | QPSK  | 25 | 0  | 20.67  | 20.66 | 20.70  | 21.5                | 0        |
| 10              | QPSK  | 25 | 12 | 20.39  | 20.24 | 20.43  |                     |          |
| 10              | QPSK  | 25 | 25 | 20.13  | 20.13 | 20.34  |                     |          |
| 10              | QPSK  | 50 | 0  | 20.68  | 20.59 | 20.72  |                     |          |
| 10              | 16QAM | 1  | 0  | 20.52  | 20.78 | 20.44  | 21.5                | 0        |
| 10              | 16QAM | 1  | 25 | 20.29  | 20.36 | 20.55  |                     |          |
| 10              | 16QAM | 1  | 49 | 20.51  | 20.63 | 20.60  |                     |          |
| 10              | 16QAM | 25 | 0  | 20.55  | 20.41 | 20.58  | 21.5                | 0        |
| 10              | 16QAM | 25 | 12 | 20.54  | 20.46 | 20.56  |                     |          |
| 10              | 16QAM | 25 | 25 | 20.30  | 20.36 | 20.56  |                     |          |
| 10              | 16QAM | 50 | 0  | 20.41  | 20.37 | 20.61  |                     |          |
| 10              | 64QAM | 1  | 0  | 20.43  | 20.67 | 20.35  | 21.5                | 0        |
| 10              | 64QAM | 1  | 25 | 20.28  | 20.28 | 20.59  |                     |          |
| 10              | 64QAM | 1  | 49 | 20.44  | 20.58 | 20.49  |                     |          |
| 10              | 64QAM | 25 | 0  | 19.65  | 19.81 | 19.99  | 21                  | 0.5      |
| 10              | 64QAM | 25 | 12 | 19.63  | 19.80 | 19.91  |                     |          |
| 10              | 64QAM | 25 | 25 | 19.65  | 19.76 | 19.90  |                     |          |
| 10              | 64QAM | 50 | 0  | 19.82  | 19.84 | 20.00  |                     |          |
| Channel         |       |    |    | 18625  | 18900 | 19175  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |       |    |    | 1852.5 | 1880  | 1907.5 |                     |          |
| 5               | QPSK  | 1  | 0  | 20.82  | 20.72 | 20.78  | 21.5                | 0        |
| 5               | QPSK  | 1  | 12 | 20.29  | 20.15 | 20.35  |                     |          |
| 5               | QPSK  | 1  | 24 | 20.01  | 20.15 | 20.37  |                     |          |
| 5               | QPSK  | 12 | 0  | 20.70  | 20.66 | 20.74  | 21.5                | 0        |
| 5               | QPSK  | 12 | 7  | 20.31  | 20.22 | 20.47  |                     |          |
| 5               | QPSK  | 12 | 13 | 20.22  | 20.20 | 20.42  |                     |          |
| 5               | QPSK  | 25 | 0  | 20.64  | 20.66 | 20.62  |                     |          |
| 5               | 16QAM | 1  | 0  | 20.57  | 20.75 | 20.38  | 21.5                | 0        |
| 5               | 16QAM | 1  | 12 | 20.29  | 20.33 | 20.59  |                     |          |
| 5               | 16QAM | 1  | 24 | 20.55  | 20.66 | 20.51  |                     |          |
| 5               | 16QAM | 12 | 0  | 20.49  | 20.50 | 20.64  | 21.5                | 0        |
| 5               | 16QAM | 12 | 7  | 20.55  | 20.44 | 20.56  |                     |          |
| 5               | 16QAM | 12 | 13 | 20.28  | 20.39 | 20.55  |                     |          |
| 5               | 16QAM | 25 | 0  | 20.43  | 20.38 | 20.61  |                     |          |
| 5               | 64QAM | 1  | 0  | 20.42  | 20.67 | 20.32  | 21.5                | 0        |
| 5               | 64QAM | 1  | 12 | 20.25  | 20.22 | 20.60  |                     |          |
| 5               | 64QAM | 1  | 24 | 20.51  | 20.60 | 20.56  |                     |          |
| 5               | 64QAM | 12 | 0  | 19.60  | 19.84 | 19.96  | 21                  | 0.5      |
| 5               | 64QAM | 12 | 7  | 19.62  | 19.81 | 19.93  |                     |          |
| 5               | 64QAM | 12 | 13 | 19.65  | 19.78 | 19.91  |                     |          |
| 5               | 64QAM | 25 | 0  | 19.75  | 19.78 | 20.02  |                     |          |
| Channel         |       |    |    | 18615  | 18900 | 19185  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |       |    |    | 1851.5 | 1880  | 1908.5 |                     |          |
| 3               | QPSK  | 1  | 0  | 20.86  | 20.70 | 20.80  | 21.5                | 0        |
| 3               | QPSK  | 1  | 8  | 20.27  | 20.20 | 20.35  |                     |          |
| 3               | QPSK  | 1  | 14 | 20.02  | 20.20 | 20.39  |                     |          |
| 3               | QPSK  | 8  | 0  | 20.71  | 20.68 | 20.70  | 21.5                | 0        |
| 3               | QPSK  | 8  | 4  | 20.35  | 20.25 | 20.45  |                     |          |
| 3               | QPSK  | 8  | 7  | 20.12  | 20.19 | 20.39  |                     |          |
| 3               | QPSK  | 15 | 0  | 20.65  | 20.65 | 20.66  |                     |          |
| 3               | 16QAM | 1  | 0  | 20.58  | 20.77 | 20.45  | 21.5                | 0        |
| 3               | 16QAM | 1  | 8  | 20.38  | 20.32 | 20.60  |                     |          |
| 3               | 16QAM | 1  | 14 | 20.51  | 20.69 | 20.54  |                     |          |
| 3               | 16QAM | 8  | 0  | 20.50  | 20.51 | 20.61  | 21.5                | 0        |
| 3               | 16QAM | 8  | 4  | 20.47  | 20.48 | 20.55  |                     |          |
| 3               | 16QAM | 8  | 7  | 20.32  | 20.37 | 20.55  |                     |          |



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|                 |       |    |    |        |       |        |                        |             |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| 3               | 16QAM | 15 | 0  | 20.34  | 20.41 | 20.52  |                        |             |
| 3               | 64QAM | 1  | 0  | 20.40  | 20.67 | 20.36  | 21.5                   | 0           |
| 3               | 64QAM | 1  | 8  | 20.27  | 20.23 | 20.56  |                        |             |
| 3               | 64QAM | 1  | 14 | 20.51  | 20.54 | 20.53  |                        |             |
| 3               | 64QAM | 8  | 0  | 19.68  | 19.85 | 19.94  | 21                     | 0.5         |
| 3               | 64QAM | 8  | 4  | 19.71  | 19.74 | 19.93  |                        |             |
| 3               | 64QAM | 8  | 7  | 19.63  | 19.80 | 19.87  |                        |             |
| 3               | 64QAM | 15 | 0  | 19.82  | 19.85 | 19.96  |                        |             |
| Channel         |       |    |    | 18607  | 18900 | 19193  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1850.7 | 1880  | 1909.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 20.80  | 20.78 | 20.76  | 21.5                   | 0           |
| 1.4             | QPSK  | 1  | 3  | 20.31  | 20.20 | 20.31  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 20.04  | 20.19 | 20.37  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 20.71  | 20.70 | 20.68  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 20.33  | 20.32 | 20.40  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 20.18  | 20.20 | 20.37  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 20.74  | 20.66 | 20.68  | 21.5                   | 0           |
| 1.4             | 16QAM | 1  | 0  | 20.49  | 20.70 | 20.48  | 21.5                   | 0           |
| 1.4             | 16QAM | 1  | 3  | 20.32  | 20.26 | 20.60  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 20.47  | 20.73 | 20.61  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 20.47  | 20.51 | 20.57  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 20.47  | 20.45 | 20.57  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 20.28  | 20.29 | 20.62  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 20.35  | 20.41 | 20.53  | 21.5                   | 0           |
| 1.4             | 64QAM | 1  | 0  | 20.49  | 20.70 | 20.31  | 21.5                   | 0           |
| 1.4             | 64QAM | 1  | 3  | 20.27  | 20.24 | 20.53  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 20.51  | 20.59 | 20.52  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 20.57  | 20.71 | 20.48  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 20.36  | 20.27 | 20.57  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 20.56  | 20.72 | 20.54  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 19.77  | 19.80 | 20.04  | 21                     | 0.5         |



**<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) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 20050                 | 20175                    | 20300                  | 20.5                | 0        |
| Frequency (MHz) |            |         |           | 1720                  | 1732.5                   | 1745                   |                     |          |
| 20              | QPSK       | 1       | 0         | 19.59                 | 19.61                    | 19.58                  |                     |          |
| 20              | QPSK       | 1       | 49        | 19.53                 | 19.55                    | 19.56                  | 20.5                | 0        |
| 20              | QPSK       | 1       | 99        | 19.45                 | 19.56                    | 19.50                  |                     |          |
| 20              | QPSK       | 50      | 0         | 19.28                 | 19.31                    | 19.35                  |                     |          |
| 20              | QPSK       | 50      | 24        | 19.28                 | 19.41                    | 19.38                  | 20.5                | 0        |
| 20              | QPSK       | 50      | 50        | 19.21                 | 19.35                    | 19.27                  |                     |          |
| 20              | QPSK       | 100     | 0         | 19.24                 | 19.37                    | 19.31                  |                     |          |
| 20              | 16QAM      | 1       | 0         | 19.12                 | 19.16                    | 19.13                  | 20.5                | 0        |
| 20              | 16QAM      | 1       | 49        | 19.08                 | 19.10                    | 19.17                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 19.01                 | 19.09                    | 19.08                  |                     |          |
| 20              | 16QAM      | 50      | 0         | 19.15                 | 19.19                    | 19.25                  | 20.5                | 0        |
| 20              | 16QAM      | 50      | 24        | 19.12                 | 19.28                    | 19.26                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 19.10                 | 19.24                    | 19.18                  |                     |          |
| 20              | 16QAM      | 100     | 0         | 19.11                 | 19.24                    | 19.23                  | 20.5                | 0        |
| 20              | 64QAM      | 1       | 0         | 19.48                 | 19.51                    | 19.54                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 19.42                 | 19.49                    | 19.53                  |                     |          |
| 20              | 64QAM      | 1       | 99        | 19.35                 | 19.46                    | 19.45                  | 20.5                | 0        |
| 20              | 64QAM      | 50      | 0         | 19.29                 | 19.31                    | 19.40                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 19.29                 | 19.41                    | 19.36                  |                     |          |
| 20              | 64QAM      | 50      | 50        | 19.23                 | 19.35                    | 19.32                  | 20.5                | 0        |
| 20              | 64QAM      | 100     | 0         | 19.26                 | 19.37                    | 19.33                  |                     |          |
| Channel         |            |         |           | 20025                 | 20175                    | 20325                  | 20.5                | 0        |
| Frequency (MHz) |            |         |           | 1717.5                | 1732.5                   | 1747.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 19.58                 | 19.51                    | 19.58                  |                     |          |
| 15              | QPSK       | 1       | 37        | 19.45                 | 19.45                    | 19.46                  | 20.5                | 0        |
| 15              | QPSK       | 1       | 74        | 19.38                 | 19.52                    | 19.48                  |                     |          |
| 15              | QPSK       | 36      | 0         | 19.18                 | 19.26                    | 19.35                  | 20.5                | 0        |
| 15              | QPSK       | 36      | 20        | 19.19                 | 19.37                    | 19.28                  |                     |          |
| 15              | QPSK       | 36      | 39        | 19.18                 | 19.31                    | 19.25                  |                     |          |
| 15              | QPSK       | 75      | 0         | 19.17                 | 19.29                    | 19.21                  | 20.5                | 0        |
| 15              | 16QAM      | 1       | 0         | 19.04                 | 19.10                    | 19.06                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 19.03                 | 19.09                    | 19.16                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 18.99                 | 19.08                    | 19.02                  | 20.5                | 0        |
| 15              | 16QAM      | 36      | 0         | 19.05                 | 19.11                    | 19.20                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 19.10                 | 19.27                    | 19.18                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 19.07                 | 19.20                    | 19.17                  | 20.5                | 0        |
| 15              | 16QAM      | 75      | 0         | 19.06                 | 19.17                    | 19.22                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 19.38                 | 19.50                    | 19.52                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 19.34                 | 19.48                    | 19.48                  | 20.5                | 0        |
| 15              | 64QAM      | 1       | 74        | 19.33                 | 19.37                    | 19.35                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 19.26                 | 19.26                    | 19.30                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 19.22                 | 19.36                    | 19.35                  | 20.5                | 0        |
| 15              | 64QAM      | 36      | 39        | 19.14                 | 19.29                    | 19.31                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 19.20                 | 19.29                    | 19.32                  |                     |          |
| Channel         |            |         |           | 20000                 | 20175                    | 20350                  | 20.5                | 0        |
| Frequency (MHz) |            |         |           | 1715                  | 1732.5                   | 1750                   |                     |          |
| 10              | QPSK       | 1       | 0         | 19.58                 | 19.58                    | 19.58                  |                     |          |
| 10              | QPSK       | 1       | 25        | 19.51                 | 19.54                    | 19.48                  | 20.5                | 0        |
| 10              | QPSK       | 1       | 49        | 19.45                 | 19.53                    | 19.44                  |                     |          |
| 10              | QPSK       | 25      | 0         | 19.20                 | 19.31                    | 19.32                  | 20.5                | 0        |
| 10              | QPSK       | 25      | 12        | 19.27                 | 19.32                    | 19.35                  |                     |          |



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|                 |       |    |    |        |        |        |                        |             |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| 10              | QPSK  | 25 | 25 | 19.11  | 19.29  | 19.20  |                        |             |
| 10              | QPSK  | 50 | 0  | 19.20  | 19.34  | 19.23  |                        |             |
| 10              | 16QAM | 1  | 0  | 19.02  | 19.15  | 19.09  |                        |             |
| 10              | 16QAM | 1  | 25 | 19.08  | 19.07  | 19.16  | 20.5                   | 0           |
| 10              | 16QAM | 1  | 49 | 18.91  | 19.07  | 19.03  |                        |             |
| 10              | 16QAM | 25 | 0  | 19.14  | 19.11  | 19.20  |                        |             |
| 10              | 16QAM | 25 | 12 | 19.07  | 19.26  | 19.21  | 20.5                   | 0           |
| 10              | 16QAM | 25 | 25 | 19.08  | 19.16  | 19.16  |                        |             |
| 10              | 16QAM | 50 | 0  | 19.06  | 19.16  | 19.19  |                        |             |
| 10              | 64QAM | 1  | 0  | 19.38  | 19.44  | 19.48  | 20.5                   | 0           |
| 10              | 64QAM | 1  | 25 | 19.42  | 19.44  | 19.44  |                        |             |
| 10              | 64QAM | 1  | 49 | 19.25  | 19.45  | 19.40  |                        |             |
| 10              | 64QAM | 25 | 0  | 19.24  | 19.28  | 19.34  | 20.5                   | 0           |
| 10              | 64QAM | 25 | 12 | 19.19  | 19.31  | 19.28  |                        |             |
| 10              | 64QAM | 25 | 25 | 19.21  | 19.33  | 19.22  |                        |             |
| 10              | 64QAM | 50 | 0  | 19.23  | 19.31  | 19.29  |                        |             |
| Channel         |       |    |    | 19975  | 20175  | 20375  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1712.5 | 1732.5 | 1752.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 19.56  | 19.51  | 19.57  | 20.5                   | 0           |
| 5               | QPSK  | 1  | 12 | 19.46  | 19.46  | 19.54  |                        |             |
| 5               | QPSK  | 1  | 24 | 19.35  | 19.55  | 19.40  |                        |             |
| 5               | QPSK  | 12 | 0  | 19.24  | 19.25  | 19.33  | 20.5                   | 0           |
| 5               | QPSK  | 12 | 7  | 19.19  | 19.40  | 19.29  |                        |             |
| 5               | QPSK  | 12 | 13 | 19.12  | 19.30  | 19.20  |                        |             |
| 5               | QPSK  | 25 | 0  | 19.19  | 19.31  | 19.23  | 20.5                   | 0           |
| 5               | 16QAM | 1  | 0  | 19.06  | 19.10  | 19.12  |                        |             |
| 5               | 16QAM | 1  | 12 | 18.99  | 19.06  | 19.16  |                        |             |
| 5               | 16QAM | 1  | 24 | 18.93  | 19.06  | 18.99  | 20.5                   | 0           |
| 5               | 16QAM | 12 | 0  | 19.12  | 19.09  | 19.25  |                        |             |
| 5               | 16QAM | 12 | 7  | 19.02  | 19.25  | 19.16  |                        |             |
| 5               | 16QAM | 12 | 13 | 19.08  | 19.24  | 19.13  | 20.5                   | 0           |
| 5               | 16QAM | 25 | 0  | 19.07  | 19.16  | 19.21  |                        |             |
| 5               | 64QAM | 1  | 0  | 19.42  | 19.42  | 19.45  |                        |             |
| 5               | 64QAM | 1  | 12 | 19.34  | 19.43  | 19.49  | 20.5                   | 0           |
| 5               | 64QAM | 1  | 24 | 19.27  | 19.45  | 19.42  |                        |             |
| 5               | 64QAM | 12 | 0  | 19.25  | 19.24  | 19.34  |                        |             |
| 5               | 64QAM | 12 | 7  | 19.28  | 19.36  | 19.34  | 20.5                   | 0           |
| 5               | 64QAM | 12 | 13 | 19.20  | 19.29  | 19.28  |                        |             |
| 5               | 64QAM | 25 | 0  | 19.23  | 19.29  | 19.31  |                        |             |
| Channel         |       |    |    | 19965  | 20175  | 20385  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1711.5 | 1732.5 | 1753.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 19.49  | 19.59  | 19.53  | 20.5                   | 0           |
| 3               | QPSK  | 1  | 8  | 19.43  | 19.55  | 19.53  |                        |             |
| 3               | QPSK  | 1  | 14 | 19.36  | 19.47  | 19.49  |                        |             |
| 3               | QPSK  | 8  | 0  | 19.28  | 19.22  | 19.33  | 20.5                   | 0           |
| 3               | QPSK  | 8  | 4  | 19.21  | 19.36  | 19.32  |                        |             |
| 3               | QPSK  | 8  | 7  | 19.15  | 19.25  | 19.23  |                        |             |
| 3               | QPSK  | 15 | 0  | 19.15  | 19.32  | 19.31  | 20.5                   | 0           |
| 3               | 16QAM | 1  | 0  | 19.11  | 19.16  | 19.13  |                        |             |
| 3               | 16QAM | 1  | 8  | 19.05  | 19.06  | 19.13  |                        |             |
| 3               | 16QAM | 1  | 14 | 18.96  | 19.03  | 19.05  | 20.5                   | 0           |
| 3               | 16QAM | 8  | 0  | 19.06  | 19.14  | 19.20  |                        |             |
| 3               | 16QAM | 8  | 4  | 19.11  | 19.28  | 19.24  |                        |             |
| 3               | 16QAM | 8  | 7  | 19.07  | 19.23  | 19.13  | 20.5                   | 0           |
| 3               | 16QAM | 15 | 0  | 19.05  | 19.15  | 19.18  |                        |             |
| 3               | 64QAM | 1  | 0  | 19.40  | 19.43  | 19.47  | 20.5                   | 0           |



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|                 |       |    |    |        |        |        |                     |          |
|-----------------|-------|----|----|--------|--------|--------|---------------------|----------|
| 3               | 64QAM | 1  | 8  | 19.37  | 19.39  | 19.45  | 20.5                | 0        |
| 3               | 64QAM | 1  | 14 | 19.31  | 19.45  | 19.39  |                     |          |
| 3               | 64QAM | 8  | 0  | 19.26  | 19.26  | 19.33  |                     |          |
| 3               | 64QAM | 8  | 4  | 19.25  | 19.41  | 19.31  |                     |          |
| 3               | 64QAM | 8  | 7  | 19.23  | 19.32  | 19.29  |                     |          |
| 3               | 64QAM | 15 | 0  | 19.19  | 19.35  | 19.25  |                     |          |
| Channel         |       |    |    | 19957  | 20175  | 20393  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |       |    |    | 1710.7 | 1732.5 | 1754.3 |                     |          |
| 1.4             | QPSK  | 1  | 0  | 19.58  | 19.57  | 19.52  | 20.5                | 0        |
| 1.4             | QPSK  | 1  | 3  | 19.43  | 19.46  | 19.47  |                     |          |
| 1.4             | QPSK  | 1  | 5  | 19.37  | 19.55  | 19.47  |                     |          |
| 1.4             | QPSK  | 3  | 0  | 19.28  | 19.22  | 19.27  |                     |          |
| 1.4             | QPSK  | 3  | 1  | 19.24  | 19.40  | 19.29  |                     |          |
| 1.4             | QPSK  | 3  | 3  | 19.20  | 19.33  | 19.25  |                     |          |
| 1.4             | QPSK  | 6  | 0  | 19.21  | 19.31  | 19.22  | 20.5                | 0        |
| 1.4             | 16QAM | 1  | 0  | 19.11  | 19.09  | 19.06  | 20.5                | 0        |
| 1.4             | 16QAM | 1  | 3  | 19.05  | 19.01  | 19.08  |                     |          |
| 1.4             | 16QAM | 1  | 5  | 18.97  | 19.04  | 19.08  |                     |          |
| 1.4             | 16QAM | 3  | 0  | 19.15  | 19.15  | 19.21  |                     |          |
| 1.4             | 16QAM | 3  | 1  | 19.03  | 19.19  | 19.23  |                     |          |
| 1.4             | 16QAM | 3  | 3  | 19.07  | 19.18  | 19.16  |                     |          |
| 1.4             | 16QAM | 6  | 0  | 19.08  | 19.20  | 19.19  | 20.5                | 0        |
| 1.4             | 64QAM | 1  | 0  | 19.45  | 19.46  | 19.46  | 20.5                | 0        |
| 1.4             | 64QAM | 1  | 3  | 19.41  | 19.43  | 19.49  |                     |          |
| 1.4             | 64QAM | 1  | 5  | 19.32  | 19.40  | 19.39  |                     |          |
| 1.4             | 64QAM | 3  | 0  | 19.29  | 19.31  | 19.31  |                     |          |
| 1.4             | 64QAM | 3  | 1  | 19.28  | 19.38  | 19.28  |                     |          |
| 1.4             | 64QAM | 3  | 3  | 19.20  | 19.35  | 19.28  |                     |          |
| 1.4             | 64QAM | 6  | 0  | 19.24  | 19.37  | 19.24  | 20.5                | 0        |



**<LTE Band 5>**

| 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 20450                    | 20525                       | 20600                     |                        |             |
| Frequency (MHz) |            |         |           | 829                      | 836.5                       | 844                       |                        |             |
| 10              | QPSK       | 1       | 0         | 22.65                    | 22.59                       | 22.81                     | 24                     | 0           |
| 10              | QPSK       | 1       | 25        | 22.64                    | 22.87                       | 22.78                     |                        |             |
| 10              | QPSK       | 1       | 49        | 22.54                    | 22.54                       | 22.79                     |                        |             |
| 10              | QPSK       | 25      | 0         | 21.67                    | 21.67                       | 21.85                     | 23                     | 1           |
| 10              | QPSK       | 25      | 12        | 21.71                    | 21.73                       | 21.85                     |                        |             |
| 10              | QPSK       | 25      | 25        | 21.60                    | 21.61                       | 21.77                     |                        |             |
| 10              | QPSK       | 50      | 0         | 21.64                    | 21.68                       | 21.83                     |                        |             |
| 10              | 16QAM      | 1       | 0         | 22.02                    | 21.96                       | 22.22                     | 23                     | 1           |
| 10              | 16QAM      | 1       | 25        | 22.01                    | 22.04                       | 22.12                     |                        |             |
| 10              | 16QAM      | 1       | 49        | 21.95                    | 21.92                       | 22.17                     |                        |             |
| 10              | 16QAM      | 25      | 0         | 20.76                    | 20.83                       | 20.95                     | 22                     | 2           |
| 10              | 16QAM      | 25      | 12        | 20.76                    | 20.84                       | 20.96                     |                        |             |
| 10              | 16QAM      | 25      | 25        | 20.73                    | 20.71                       | 20.86                     |                        |             |
| 10              | 16QAM      | 50      | 0         | 20.76                    | 20.79                       | 20.95                     |                        |             |
| 10              | 64QAM      | 1       | 0         | 20.88                    | 20.86                       | 21.10                     | 22                     | 2           |
| 10              | 64QAM      | 1       | 25        | 20.88                    | 20.92                       | 21.04                     |                        |             |
| 10              | 64QAM      | 1       | 49        | 20.80                    | 20.83                       | 21.07                     |                        |             |
| 10              | 64QAM      | 25      | 0         | 19.79                    | 19.82                       | 19.96                     | 21                     | 3           |
| 10              | 64QAM      | 25      | 12        | 19.77                    | 19.84                       | 19.97                     |                        |             |
| 10              | 64QAM      | 25      | 25        | 19.75                    | 19.74                       | 19.88                     |                        |             |
| 10              | 64QAM      | 50      | 0         | 19.76                    | 19.79                       | 19.94                     |                        |             |
| Channel         |            |         |           | 20425                    | 20525                       | 20625                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 826.5                    | 836.5                       | 846.5                     |                        |             |
| 5               | QPSK       | 1       | 0         | 22.63                    | 22.56                       | 22.84                     | 24                     | 0           |
| 5               | QPSK       | 1       | 12        | 22.66                    | 22.63                       | 22.83                     |                        |             |
| 5               | QPSK       | 1       | 24        | 22.60                    | 22.57                       | 22.81                     |                        |             |
| 5               | QPSK       | 12      | 0         | 21.69                    | 21.68                       | 21.85                     | 23                     | 1           |
| 5               | QPSK       | 12      | 7         | 21.72                    | 21.68                       | 21.88                     |                        |             |
| 5               | QPSK       | 12      | 13        | 21.65                    | 21.67                       | 21.82                     |                        |             |
| 5               | QPSK       | 25      | 0         | 21.65                    | 21.68                       | 21.85                     |                        |             |
| 5               | 16QAM      | 1       | 0         | 22.02                    | 21.94                       | 22.18                     | 23                     | 1           |
| 5               | 16QAM      | 1       | 12        | 22.03                    | 22.00                       | 22.16                     |                        |             |
| 5               | 16QAM      | 1       | 24        | 21.93                    | 21.99                       | 22.23                     |                        |             |
| 5               | 16QAM      | 12      | 0         | 20.80                    | 20.80                       | 20.99                     | 22                     | 2           |
| 5               | 16QAM      | 12      | 7         | 20.82                    | 20.83                       | 21.03                     |                        |             |
| 5               | 16QAM      | 12      | 13        | 20.77                    | 20.78                       | 20.94                     |                        |             |
| 5               | 16QAM      | 25      | 0         | 20.77                    | 20.79                       | 20.97                     |                        |             |
| 5               | 64QAM      | 1       | 0         | 20.92                    | 20.79                       | 21.09                     | 22                     | 2           |
| 5               | 64QAM      | 1       | 12        | 20.91                    | 20.91                       | 21.07                     |                        |             |
| 5               | 64QAM      | 1       | 24        | 20.86                    | 20.88                       | 21.12                     |                        |             |
| 5               | 64QAM      | 12      | 0         | 19.80                    | 19.81                       | 19.96                     | 21                     | 3           |
| 5               | 64QAM      | 12      | 7         | 19.83                    | 19.83                       | 20.00                     |                        |             |
| 5               | 64QAM      | 12      | 13        | 19.77                    | 19.76                       | 19.93                     |                        |             |
| 5               | 64QAM      | 25      | 0         | 19.79                    | 19.80                       | 19.98                     |                        |             |
| Channel         |            |         |           | 20415                    | 20525                       | 20635                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 825.5                    | 836.5                       | 847.5                     |                        |             |
| 3               | QPSK       | 1       | 0         | 22.64                    | 22.61                       | 22.80                     | 24                     | 0           |
| 3               | QPSK       | 1       | 8         | 22.60                    | 22.57                       | 22.84                     |                        |             |
| 3               | QPSK       | 1       | 14        | 22.58                    | 22.55                       | 22.85                     |                        |             |
| 3               | QPSK       | 8       | 0         | 21.65                    | 21.63                       | 21.85                     | 23                     | 1           |
| 3               | QPSK       | 8       | 4         | 21.66                    | 21.67                       | 21.85                     |                        |             |



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|                 |       |    |    |       |       |       |                        |             |
|-----------------|-------|----|----|-------|-------|-------|------------------------|-------------|
| 3               | QPSK  | 8  | 7  | 21.65 | 21.64 | 21.93 |                        |             |
| 3               | QPSK  | 15 | 0  | 21.64 | 21.62 | 21.84 |                        |             |
| 3               | 16QAM | 1  | 0  | 22.00 | 21.98 | 22.14 |                        |             |
| 3               | 16QAM | 1  | 8  | 21.95 | 22.01 | 22.20 | 23                     | 1           |
| 3               | 16QAM | 1  | 14 | 21.95 | 21.97 | 22.18 |                        |             |
| 3               | 16QAM | 8  | 0  | 20.81 | 20.81 | 21.00 |                        |             |
| 3               | 16QAM | 8  | 4  | 20.84 | 20.84 | 21.02 | 22                     | 2           |
| 3               | 16QAM | 8  | 7  | 20.81 | 20.80 | 21.09 |                        |             |
| 3               | 16QAM | 15 | 0  | 20.76 | 20.75 | 20.95 |                        |             |
| 3               | 64QAM | 1  | 0  | 20.87 | 20.87 | 21.06 | 22                     | 2           |
| 3               | 64QAM | 1  | 8  | 20.88 | 20.87 | 21.12 |                        |             |
| 3               | 64QAM | 1  | 14 | 20.87 | 20.87 | 21.11 |                        |             |
| 3               | 64QAM | 8  | 0  | 19.78 | 19.78 | 19.96 | 21                     | 3           |
| 3               | 64QAM | 8  | 4  | 19.80 | 19.80 | 19.96 |                        |             |
| 3               | 64QAM | 8  | 7  | 19.78 | 19.78 | 20.05 |                        |             |
| 3               | 64QAM | 15 | 0  | 19.74 | 19.73 | 19.94 |                        |             |
| Channel         |       |    |    | 20407 | 20525 | 20643 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 824.7 | 836.5 | 848.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 22.62 | 22.55 | 22.84 | 24                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 22.65 | 22.63 | 22.81 |                        |             |
| 1.4             | QPSK  | 1  | 5  | 22.58 | 22.55 | 22.83 |                        |             |
| 1.4             | QPSK  | 3  | 0  | 22.63 | 22.60 | 22.86 |                        |             |
| 1.4             | QPSK  | 3  | 1  | 22.67 | 22.64 | 22.81 |                        |             |
| 1.4             | QPSK  | 3  | 3  | 22.61 | 22.61 | 22.84 |                        |             |
| 1.4             | QPSK  | 6  | 0  | 21.63 | 21.61 | 21.91 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 0  | 21.95 | 21.93 | 22.21 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 3  | 21.97 | 22.05 | 22.32 |                        |             |
| 1.4             | 16QAM | 1  | 5  | 21.94 | 21.93 | 22.22 |                        |             |
| 1.4             | 16QAM | 3  | 0  | 21.74 | 21.75 | 21.99 |                        |             |
| 1.4             | 16QAM | 3  | 1  | 21.80 | 21.76 | 22.00 |                        |             |
| 1.4             | 16QAM | 3  | 3  | 21.71 | 21.72 | 21.94 |                        |             |
| 1.4             | 16QAM | 6  | 0  | 20.80 | 20.76 | 21.04 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 0  | 20.85 | 20.85 | 21.11 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 3  | 20.94 | 20.93 | 21.19 |                        |             |
| 1.4             | 64QAM | 1  | 5  | 20.84 | 20.79 | 21.08 |                        |             |
| 1.4             | 64QAM | 3  | 0  | 20.80 | 20.79 | 21.03 |                        |             |
| 1.4             | 64QAM | 3  | 1  | 20.85 | 20.78 | 21.03 |                        |             |
| 1.4             | 64QAM | 3  | 3  | 20.77 | 20.78 | 21.01 |                        |             |
| 1.4             | 64QAM | 6  | 0  | 19.73 | 19.75 | 20.01 | 21                     | 3           |



**<LTE Band 7>**

| 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 20850                    | 21100                       | 21350                     |                        |             |
| Frequency (MHz) |            |         |           | 2510                     | 2535                        | 2560                      |                        |             |
| 20              | QPSK       | 1       | 0         | 21.09                    | 21.12                       | 21.17                     |                        |             |
| 20              | QPSK       | 1       | 49        | 21.07                    | 21.00                       | 21.15                     | 22                     | 0           |
| 20              | QPSK       | 1       | 99        | 21.04                    | 21.01                       | 21.12                     |                        |             |
| 20              | QPSK       | 50      | 0         | 21.10                    | 21.05                       | 21.13                     |                        |             |
| 20              | QPSK       | 50      | 24        | 21.08                    | 21.03                       | 21.03                     | 22                     | 0           |
| 20              | QPSK       | 50      | 50        | 21.06                    | 21.02                       | 21.04                     |                        |             |
| 20              | QPSK       | 100     | 0         | 21.03                    | 21.00                       | 21.09                     |                        |             |
| 20              | 16QAM      | 1       | 0         | 20.73                    | 20.78                       | 21.11                     | 22                     | 0           |
| 20              | 16QAM      | 1       | 49        | 20.78                    | 20.84                       | 21.05                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 20.84                    | 20.74                       | 21.07                     |                        |             |
| 20              | 16QAM      | 50      | 0         | 20.74                    | 20.76                       | 20.96                     | 22                     | 0           |
| 20              | 16QAM      | 50      | 24        | 20.76                    | 20.65                       | 20.87                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 20.65                    | 20.56                       | 20.93                     |                        |             |
| 20              | 16QAM      | 100     | 0         | 20.56                    | 20.62                       | 20.90                     | 22                     | 0           |
| 20              | 64QAM      | 1       | 0         | 20.62                    | 20.59                       | 21.09                     |                        |             |
| 20              | 64QAM      | 1       | 49        | 20.59                    | 20.78                       | 21.10                     |                        |             |
| 20              | 64QAM      | 1       | 99        | 20.78                    | 20.82                       | 21.06                     | 21                     | 1           |
| 20              | 64QAM      | 50      | 0         | 20.26                    | 20.10                       | 20.28                     |                        |             |
| 20              | 64QAM      | 50      | 24        | 20.30                    | 20.11                       | 20.19                     |                        |             |
| 20              | 64QAM      | 50      | 50        | 20.20                    | 20.17                       | 20.21                     | 21                     | 1           |
| 20              | 64QAM      | 100     | 0         | 20.18                    | 20.13                       | 20.21                     |                        |             |
| Channel         |            |         |           | 20825                    | 21100                       | 21375                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 2507.5                   | 2535                        | 2562.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 21.09                    | 21.05                       | 21.16                     |                        |             |
| 15              | QPSK       | 1       | 37        | 21.07                    | 20.90                       | 21.15                     | 22                     | 0           |
| 15              | QPSK       | 1       | 74        | 20.97                    | 21.00                       | 21.08                     |                        |             |
| 15              | QPSK       | 36      | 0         | 21.03                    | 20.97                       | 21.06                     | 22                     | 0           |
| 15              | QPSK       | 36      | 20        | 21.04                    | 20.94                       | 20.94                     |                        |             |
| 15              | QPSK       | 36      | 39        | 20.99                    | 20.95                       | 20.97                     |                        |             |
| 15              | QPSK       | 75      | 0         | 20.98                    | 20.94                       | 21.09                     | 22                     | 0           |
| 15              | 16QAM      | 1       | 0         | 20.69                    | 20.71                       | 21.08                     |                        |             |
| 15              | 16QAM      | 1       | 37        | 20.76                    | 20.81                       | 21.01                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 20.82                    | 20.73                       | 21.05                     | 22                     | 0           |
| 15              | 16QAM      | 36      | 0         | 20.73                    | 20.72                       | 20.92                     |                        |             |
| 15              | 16QAM      | 36      | 20        | 20.74                    | 20.57                       | 20.77                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 20.57                    | 20.47                       | 20.87                     | 22                     | 0           |
| 15              | 16QAM      | 75      | 0         | 20.55                    | 20.58                       | 20.87                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 20.52                    | 20.56                       | 21.06                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 20.59                    | 20.68                       | 21.07                     | 22                     | 0           |
| 15              | 64QAM      | 1       | 74        | 20.68                    | 20.76                       | 20.98                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 20.17                    | 20.09                       | 20.23                     |                        |             |
| 15              | 64QAM      | 36      | 20        | 20.20                    | 20.08                       | 20.17                     | 21                     | 1           |
| 15              | 64QAM      | 36      | 39        | 20.10                    | 20.12                       | 20.19                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 20.09                    | 20.08                       | 20.11                     |                        |             |
| Channel         |            |         |           | 20800                    | 21100                       | 21400                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 2505                     | 2535                        | 2565                      |                        |             |
| 10              | QPSK       | 1       | 0         | 21.09                    | 21.04                       | 21.15                     |                        |             |
| 10              | QPSK       | 1       | 25        | 21.00                    | 20.92                       | 21.13                     | 22                     | 0           |
| 10              | QPSK       | 1       | 49        | 21.03                    | 20.94                       | 21.06                     |                        |             |
| 10              | QPSK       | 25      | 0         | 21.10                    | 21.02                       | 21.06                     | 22                     | 0           |
| 10              | QPSK       | 25      | 12        | 21.03                    | 20.99                       | 21.01                     |                        |             |



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|                 |       |    |    |        |       |        |                        |             |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| 10              | QPSK  | 25 | 25 | 21.03  | 20.97 | 21.00  |                        |             |
| 10              | QPSK  | 50 | 0  | 20.94  | 20.90 | 20.99  |                        |             |
| 10              | 16QAM | 1  | 0  | 20.70  | 20.71 | 21.03  |                        |             |
| 10              | 16QAM | 1  | 25 | 20.76  | 20.79 | 20.99  | 22                     | 0           |
| 10              | 16QAM | 1  | 49 | 20.82  | 20.67 | 21.00  |                        |             |
| 10              | 16QAM | 25 | 0  | 20.65  | 20.74 | 20.96  |                        |             |
| 10              | 16QAM | 25 | 12 | 20.75  | 20.57 | 20.78  | 22                     | 0           |
| 10              | 16QAM | 25 | 25 | 20.62  | 20.51 | 20.88  |                        |             |
| 10              | 16QAM | 50 | 0  | 20.56  | 20.62 | 20.81  |                        |             |
| 10              | 64QAM | 1  | 0  | 20.59  | 20.52 | 21.03  | 22                     | 0           |
| 10              | 64QAM | 1  | 25 | 20.59  | 20.74 | 21.04  |                        |             |
| 10              | 64QAM | 1  | 49 | 20.73  | 20.73 | 21.03  |                        |             |
| 10              | 64QAM | 25 | 0  | 20.20  | 20.06 | 20.28  | 21                     | 1           |
| 10              | 64QAM | 25 | 12 | 20.29  | 20.07 | 20.13  |                        |             |
| 10              | 64QAM | 25 | 25 | 20.19  | 20.16 | 20.12  |                        |             |
| 10              | 64QAM | 50 | 0  | 20.13  | 20.07 | 20.21  |                        |             |
| Channel         |       |    |    | 20775  | 21100 | 21425  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 2502.5 | 2535  | 2567.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 21.01  | 21.09 | 21.14  | 22                     | 0           |
| 5               | QPSK  | 1  | 12 | 20.99  | 20.99 | 21.13  |                        |             |
| 5               | QPSK  | 1  | 24 | 20.94  | 21.01 | 21.03  |                        |             |
| 5               | QPSK  | 12 | 0  | 21.05  | 20.98 | 21.10  | 22                     | 0           |
| 5               | QPSK  | 12 | 7  | 21.03  | 21.01 | 20.94  |                        |             |
| 5               | QPSK  | 12 | 13 | 21.02  | 20.96 | 20.94  |                        |             |
| 5               | QPSK  | 25 | 0  | 20.98  | 20.90 | 20.99  | 22                     | 0           |
| 5               | 16QAM | 1  | 0  | 20.72  | 20.68 | 21.09  |                        |             |
| 5               | 16QAM | 1  | 12 | 20.72  | 20.75 | 20.98  |                        |             |
| 5               | 16QAM | 1  | 24 | 20.78  | 20.74 | 21.02  | 22                     | 0           |
| 5               | 16QAM | 12 | 0  | 20.64  | 20.74 | 20.95  |                        |             |
| 5               | 16QAM | 12 | 7  | 20.73  | 20.64 | 20.81  |                        |             |
| 5               | 16QAM | 12 | 13 | 20.62  | 20.47 | 20.86  | 22                     | 0           |
| 5               | 16QAM | 25 | 0  | 20.50  | 20.53 | 20.86  |                        |             |
| 5               | 64QAM | 1  | 0  | 20.59  | 20.55 | 21.08  |                        |             |
| 5               | 64QAM | 1  | 12 | 20.55  | 20.75 | 21.10  | 22                     | 0           |
| 5               | 64QAM | 1  | 24 | 20.68  | 20.82 | 21.01  |                        |             |
| 5               | 64QAM | 12 | 0  | 20.18  | 20.06 | 20.20  |                        |             |
| 5               | 64QAM | 12 | 7  | 20.27  | 20.04 | 20.13  | 21                     | 1           |
| 5               | 64QAM | 12 | 13 | 20.11  | 20.14 | 20.21  |                        |             |
| 5               | 64QAM | 25 | 0  | 20.18  | 20.05 | 20.20  |                        |             |


**<LTE Band 12>**

| 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 23060                    | 23095                       | 23130                     |                        |             |
| Frequency (MHz) |            |         |           | 704                      | 707.5                       | 711                       |                        |             |
| 10              | QPSK       | 1       | 0         | 22.53                    | 22.47                       | 22.55                     |                        |             |
| 10              | QPSK       | 1       | 25        | 22.73                    | 22.58                       | 22.56                     | 24                     | 0           |
| 10              | QPSK       | 1       | 49        | 22.58                    | 22.55                       | 22.62                     |                        |             |
| 10              | QPSK       | 25      | 0         | 21.62                    | 21.61                       | 21.59                     |                        |             |
| 10              | QPSK       | 25      | 12        | 21.64                    | 21.62                       | 21.60                     | 23                     | 1           |
| 10              | QPSK       | 25      | 25        | 21.66                    | 21.62                       | 21.53                     |                        |             |
| 10              | QPSK       | 50      | 0         | 21.65                    | 21.59                       | 21.57                     |                        |             |
| 10              | 16QAM      | 1       | 0         | 21.87                    | 21.86                       | 21.91                     | 23                     | 1           |
| 10              | 16QAM      | 1       | 25        | 22.03                    | 21.96                       | 21.92                     |                        |             |
| 10              | 16QAM      | 1       | 49        | 21.98                    | 21.91                       | 21.95                     |                        |             |
| 10              | 16QAM      | 25      | 0         | 20.75                    | 20.72                       | 20.69                     | 22                     | 2           |
| 10              | 16QAM      | 25      | 12        | 20.77                    | 20.77                       | 20.69                     |                        |             |
| 10              | 16QAM      | 25      | 25        | 20.75                    | 20.72                       | 20.69                     |                        |             |
| 10              | 16QAM      | 50      | 0         | 20.79                    | 20.74                       | 20.66                     | 22                     | 2           |
| 10              | 64QAM      | 1       | 0         | 20.72                    | 20.75                       | 20.79                     |                        |             |
| 10              | 64QAM      | 1       | 25        | 20.90                    | 20.85                       | 20.82                     |                        |             |
| 10              | 64QAM      | 1       | 49        | 20.87                    | 20.82                       | 20.85                     | 21                     | 3           |
| 10              | 64QAM      | 25      | 0         | 19.73                    | 19.73                       | 19.71                     |                        |             |
| 10              | 64QAM      | 25      | 12        | 19.78                    | 19.77                       | 19.71                     |                        |             |
| 10              | 64QAM      | 25      | 25        | 19.76                    | 19.71                       | 19.70                     | 21                     | 3           |
| 10              | 64QAM      | 50      | 0         | 19.76                    | 19.71                       | 19.66                     |                        |             |
| Channel         |            |         |           | 23035                    | 23095                       | 23155                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 701.5                    | 707.5                       | 713.5                     |                        |             |
| 5               | QPSK       | 1       | 0         | 22.54                    | 22.56                       | 22.50                     |                        |             |
| 5               | QPSK       | 1       | 12        | 22.54                    | 22.55                       | 22.60                     | 24                     | 0           |
| 5               | QPSK       | 1       | 24        | 22.60                    | 22.57                       | 22.56                     |                        |             |
| 5               | QPSK       | 12      | 0         | 21.55                    | 21.59                       | 21.51                     | 23                     | 1           |
| 5               | QPSK       | 12      | 7         | 21.58                    | 21.61                       | 21.71                     |                        |             |
| 5               | QPSK       | 12      | 13        | 21.66                    | 21.59                       | 21.61                     |                        |             |
| 5               | QPSK       | 25      | 0         | 21.68                    | 21.60                       | 21.55                     | 23                     | 1           |
| 5               | 16QAM      | 1       | 0         | 21.84                    | 21.95                       | 21.88                     |                        |             |
| 5               | 16QAM      | 1       | 12        | 21.93                    | 21.94                       | 21.94                     |                        |             |
| 5               | 16QAM      | 1       | 24        | 21.98                    | 21.93                       | 21.93                     | 22                     | 2           |
| 5               | 16QAM      | 12      | 0         | 20.68                    | 20.71                       | 20.68                     |                        |             |
| 5               | 16QAM      | 12      | 7         | 20.74                    | 20.76                       | 20.81                     |                        |             |
| 5               | 16QAM      | 12      | 13        | 20.78                    | 20.72                       | 20.77                     | 22                     | 2           |
| 5               | 16QAM      | 25      | 0         | 20.78                    | 20.71                       | 20.64                     |                        |             |
| 5               | 64QAM      | 1       | 0         | 20.75                    | 20.83                       | 20.83                     |                        |             |
| 5               | 64QAM      | 1       | 12        | 20.83                    | 20.85                       | 20.88                     | 22                     | 2           |
| 5               | 64QAM      | 1       | 24        | 20.85                    | 20.81                       | 20.82                     |                        |             |
| 5               | 64QAM      | 12      | 0         | 19.67                    | 19.69                       | 19.66                     |                        |             |
| 5               | 64QAM      | 12      | 7         | 19.70                    | 19.72                       | 19.79                     | 21                     | 3           |
| 5               | 64QAM      | 12      | 13        | 19.78                    | 19.69                       | 19.78                     |                        |             |
| 5               | 64QAM      | 25      | 0         | 19.78                    | 19.72                       | 19.65                     |                        |             |
| Channel         |            |         |           | 23025                    | 23095                       | 23165                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 700.5                    | 707.5                       | 714.5                     |                        |             |
| 3               | QPSK       | 1       | 0         | 22.53                    | 22.54                       | 22.59                     |                        |             |
| 3               | QPSK       | 1       | 8         | 22.52                    | 22.54                       | 22.57                     | 24                     | 0           |
| 3               | QPSK       | 1       | 14        | 22.53                    | 22.54                       | 22.56                     |                        |             |
| 3               | QPSK       | 8       | 0         | 21.58                    | 21.56                       | 21.59                     | 23                     | 1           |
| 3               | QPSK       | 8       | 4         | 21.58                    | 21.63                       | 21.66                     |                        |             |



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|                 |       |    |    |       |       |       |                        |             |
|-----------------|-------|----|----|-------|-------|-------|------------------------|-------------|
| 3               | QPSK  | 8  | 7  | 21.52 | 21.56 | 21.59 |                        |             |
| 3               | QPSK  | 15 | 0  | 21.55 | 21.60 | 21.63 |                        |             |
| 3               | 16QAM | 1  | 0  | 21.88 | 21.90 | 21.93 |                        |             |
| 3               | 16QAM | 1  | 8  | 21.88 | 21.94 | 21.96 | 23                     | 1           |
| 3               | 16QAM | 1  | 14 | 21.86 | 21.89 | 21.90 |                        |             |
| 3               | 16QAM | 8  | 0  | 20.71 | 20.78 | 20.81 |                        |             |
| 3               | 16QAM | 8  | 4  | 20.74 | 20.76 | 20.79 | 22                     | 2           |
| 3               | 16QAM | 8  | 7  | 20.73 | 20.77 | 20.80 |                        |             |
| 3               | 16QAM | 15 | 0  | 20.65 | 20.70 | 20.77 |                        |             |
| 3               | 64QAM | 1  | 0  | 20.76 | 20.80 | 20.84 | 22                     | 2           |
| 3               | 64QAM | 1  | 8  | 20.76 | 20.81 | 20.82 |                        |             |
| 3               | 64QAM | 1  | 14 | 20.79 | 20.80 | 20.81 |                        |             |
| 3               | 64QAM | 8  | 0  | 19.69 | 19.70 | 19.77 | 21                     | 3           |
| 3               | 64QAM | 8  | 4  | 19.69 | 19.74 | 19.76 |                        |             |
| 3               | 64QAM | 8  | 7  | 19.71 | 19.72 | 19.75 |                        |             |
| 3               | 64QAM | 15 | 0  | 19.65 | 19.69 | 19.76 |                        |             |
| Channel         |       |    |    | 23017 | 23095 | 23173 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 699.7 | 707.5 | 715.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 22.49 | 22.51 | 22.53 | 24                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 22.57 | 22.59 | 22.60 |                        |             |
| 1.4             | QPSK  | 1  | 5  | 22.49 | 22.50 | 22.54 |                        |             |
| 1.4             | QPSK  | 3  | 0  | 22.57 | 22.57 | 22.56 |                        |             |
| 1.4             | QPSK  | 3  | 1  | 22.57 | 22.58 | 22.62 |                        |             |
| 1.4             | QPSK  | 3  | 3  | 22.55 | 22.55 | 22.60 |                        |             |
| 1.4             | QPSK  | 6  | 0  | 21.54 | 21.55 | 21.56 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 0  | 21.82 | 21.89 | 21.86 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 3  | 21.91 | 21.95 | 21.95 |                        |             |
| 1.4             | 16QAM | 1  | 5  | 21.78 | 21.89 | 21.88 |                        |             |
| 1.4             | 16QAM | 3  | 0  | 21.61 | 21.68 | 21.66 |                        |             |
| 1.4             | 16QAM | 3  | 1  | 21.68 | 21.70 | 21.72 |                        |             |
| 1.4             | 16QAM | 3  | 3  | 21.63 | 21.65 | 21.68 |                        |             |
| 1.4             | 16QAM | 6  | 0  | 20.72 | 20.76 | 20.79 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 0  | 20.72 | 20.81 | 20.82 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 3  | 20.75 | 20.85 | 20.86 |                        |             |
| 1.4             | 64QAM | 1  | 5  | 20.73 | 20.80 | 20.77 |                        |             |
| 1.4             | 64QAM | 3  | 0  | 20.63 | 20.73 | 20.70 |                        |             |
| 1.4             | 64QAM | 3  | 1  | 20.69 | 20.73 | 20.79 |                        |             |
| 1.4             | 64QAM | 3  | 3  | 20.68 | 20.71 | 20.75 |                        |             |
| 1.4             | 64QAM | 6  | 0  | 19.64 | 19.70 | 19.71 | 21                     | 3           |



**<LTE Band 17>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 23780                 | 23790                    | 23800                  |                     |          |
| Frequency (MHz) |            |         |           | 709                   | 710                      | 711                    |                     |          |
| 10              | QPSK       | 1       | 0         | 22.54                 | 22.56                    | 22.62                  | 24                  | 0        |
| 10              | QPSK       | 1       | 25        | 22.65                 | 22.61                    | 22.62                  |                     |          |
| 10              | QPSK       | 1       | 49        | 22.72                 | 22.71                    | 22.71                  |                     |          |
| 10              | QPSK       | 25      | 0         | 21.69                 | 21.66                    | 21.65                  | 23                  | 1        |
| 10              | QPSK       | 25      | 12        | 21.72                 | 21.70                    | 21.70                  |                     |          |
| 10              | QPSK       | 25      | 25        | 21.67                 | 21.62                    | 21.62                  |                     |          |
| 10              | QPSK       | 50      | 0         | 21.70                 | 21.69                    | 21.66                  |                     |          |
| 10              | 16QAM      | 1       | 0         | 21.89                 | 21.93                    | 21.97                  | 23                  | 1        |
| 10              | 16QAM      | 1       | 25        | 22.02                 | 22.00                    | 21.96                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 22.13                 | 22.11                    | 22.05                  |                     |          |
| 10              | 16QAM      | 25      | 0         | 20.81                 | 20.77                    | 20.78                  | 22                  | 2        |
| 10              | 16QAM      | 25      | 12        | 20.81                 | 20.82                    | 20.77                  |                     |          |
| 10              | 16QAM      | 25      | 25        | 20.76                 | 20.79                    | 20.77                  |                     |          |
| 10              | 16QAM      | 50      | 0         | 20.79                 | 20.78                    | 20.76                  |                     |          |
| 10              | 64QAM      | 1       | 0         | 20.82                 | 20.80                    | 20.90                  | 22                  | 2        |
| 10              | 64QAM      | 1       | 25        | 20.91                 | 20.89                    | 20.87                  |                     |          |
| 10              | 64QAM      | 1       | 49        | 21.01                 | 20.98                    | 20.98                  |                     |          |
| 10              | 64QAM      | 25      | 0         | 19.82                 | 19.77                    | 19.80                  | 21                  | 3        |
| 10              | 64QAM      | 25      | 12        | 19.84                 | 19.83                    | 19.79                  |                     |          |
| 10              | 64QAM      | 25      | 25        | 19.78                 | 19.78                    | 19.75                  |                     |          |
| 10              | 64QAM      | 50      | 0         | 19.79                 | 19.78                    | 19.75                  |                     |          |
| Channel         |            |         |           | 23755                 | 23790                    | 23825                  |                     |          |
| Frequency (MHz) |            |         |           | 706.5                 | 710                      | 713.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 22.55                 | 22.53                    | 22.60                  | 24                  | 0        |
| 5               | QPSK       | 1       | 12        | 22.67                 | 22.60                    | 22.61                  |                     |          |
| 5               | QPSK       | 1       | 24        | 22.65                 | 22.69                    | 22.69                  |                     |          |
| 5               | QPSK       | 12      | 0         | 21.72                 | 21.66                    | 21.63                  | 23                  | 1        |
| 5               | QPSK       | 12      | 7         | 21.73                 | 21.68                    | 21.67                  |                     |          |
| 5               | QPSK       | 12      | 13        | 21.69                 | 21.66                    | 21.61                  |                     |          |
| 5               | QPSK       | 25      | 0         | 21.68                 | 21.66                    | 21.66                  |                     |          |
| 5               | 16QAM      | 1       | 0         | 21.95                 | 21.86                    | 21.98                  | 23                  | 1        |
| 5               | 16QAM      | 1       | 12        | 22.07                 | 21.97                    | 22.01                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 21.98                 | 22.06                    | 22.02                  |                     |          |
| 5               | 16QAM      | 12      | 0         | 20.82                 | 20.79                    | 20.78                  | 22                  | 2        |
| 5               | 16QAM      | 12      | 7         | 20.85                 | 20.81                    | 20.81                  |                     |          |
| 5               | 16QAM      | 12      | 13        | 20.85                 | 20.78                    | 20.75                  |                     |          |
| 5               | 16QAM      | 25      | 0         | 20.80                 | 20.78                    | 20.76                  |                     |          |
| 5               | 64QAM      | 1       | 0         | 20.82                 | 20.78                    | 20.83                  | 22                  | 2        |
| 5               | 64QAM      | 1       | 12        | 20.95                 | 20.88                    | 20.87                  |                     |          |
| 5               | 64QAM      | 1       | 24        | 20.90                 | 20.95                    | 20.91                  |                     |          |
| 5               | 64QAM      | 12      | 0         | 19.82                 | 19.78                    | 19.77                  | 21                  | 3        |
| 5               | 64QAM      | 12      | 7         | 19.85                 | 19.82                    | 19.78                  |                     |          |
| 5               | 64QAM      | 12      | 13        | 19.84                 | 19.78                    | 19.75                  |                     |          |
| 5               | 64QAM      | 25      | 0         | 19.79                 | 19.78                    | 19.75                  |                     |          |



**<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) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 132072                | 132322                   | 132572                 | 20.5                | 0        |
| Frequency (MHz) |            |         |           | 1720                  | 1745                     | 1770                   |                     |          |
| 20              | QPSK       | 1       | 0         | 19.58                 | 19.65                    | 19.58                  |                     |          |
| 20              | QPSK       | 1       | 49        | 19.56                 | 19.63                    | 19.57                  | 20.5                | 0        |
| 20              | QPSK       | 1       | 99        | 19.57                 | 19.54                    | 19.51                  |                     |          |
| 20              | QPSK       | 50      | 0         | 19.52                 | 19.58                    | 19.46                  |                     |          |
| 20              | QPSK       | 50      | 24        | 19.28                 | 19.37                    | 19.28                  | 20.5                | 0        |
| 20              | QPSK       | 50      | 50        | 19.31                 | 19.32                    | 19.26                  |                     |          |
| 20              | QPSK       | 100     | 0         | 19.41                 | 19.46                    | 19.33                  |                     |          |
| 20              | 16QAM      | 1       | 0         | 19.11                 | 19.11                    | 19.13                  | 20.5                | 0        |
| 20              | 16QAM      | 1       | 49        | 19.10                 | 19.14                    | 19.11                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 19.10                 | 19.07                    | 19.03                  |                     |          |
| 20              | 16QAM      | 50      | 0         | 19.12                 | 19.19                    | 19.15                  | 20.5                | 0        |
| 20              | 16QAM      | 50      | 24        | 19.22                 | 19.20                    | 19.13                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 19.15                 | 19.18                    | 19.08                  |                     |          |
| 20              | 16QAM      | 100     | 0         | 19.22                 | 19.18                    | 19.13                  | 20.5                | 0        |
| 20              | 64QAM      | 1       | 0         | 19.48                 | 19.48                    | 19.48                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 19.44                 | 19.54                    | 19.48                  |                     |          |
| 20              | 64QAM      | 1       | 99        | 19.39                 | 19.44                    | 19.40                  | 20.5                | 0        |
| 20              | 64QAM      | 50      | 0         | 19.28                 | 19.40                    | 19.32                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 19.39                 | 19.39                    | 19.31                  |                     |          |
| 20              | 64QAM      | 50      | 50        | 19.32                 | 19.34                    | 19.27                  | 20.5                | 0        |
| 20              | 64QAM      | 100     | 0         | 19.35                 | 19.38                    | 19.32                  |                     |          |
| Channel         |            |         |           | 132047                | 132322                   | 132597                 | 20.5                | 0        |
| Frequency (MHz) |            |         |           | 1717.5                | 1745                     | 1772.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 19.57                 | 19.59                    | 19.52                  |                     |          |
| 15              | QPSK       | 1       | 37        | 19.52                 | 19.55                    | 19.49                  | 20.5                | 0        |
| 15              | QPSK       | 1       | 74        | 19.48                 | 19.45                    | 19.51                  |                     |          |
| 15              | QPSK       | 36      | 0         | 19.45                 | 19.48                    | 19.37                  | 20.5                | 0        |
| 15              | QPSK       | 36      | 20        | 19.28                 | 19.33                    | 19.23                  |                     |          |
| 15              | QPSK       | 36      | 39        | 19.25                 | 19.31                    | 19.26                  |                     |          |
| 15              | QPSK       | 75      | 0         | 19.37                 | 19.40                    | 19.28                  | 20.5                | 0        |
| 15              | 16QAM      | 1       | 0         | 19.09                 | 19.09                    | 19.13                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 19.10                 | 19.06                    | 19.07                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 19.03                 | 18.97                    | 18.93                  | 20.5                | 0        |
| 15              | 16QAM      | 36      | 0         | 19.03                 | 19.19                    | 19.14                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 19.18                 | 19.19                    | 19.12                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 19.07                 | 19.16                    | 19.07                  | 20.5                | 0        |
| 15              | 16QAM      | 75      | 0         | 19.12                 | 19.12                    | 19.09                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 19.38                 | 19.38                    | 19.48                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 19.43                 | 19.45                    | 19.38                  | 20.5                | 0        |
| 15              | 64QAM      | 1       | 74        | 19.32                 | 19.40                    | 19.34                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 19.25                 | 19.35                    | 19.23                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 19.35                 | 19.33                    | 19.31                  | 20.5                | 0        |
| 15              | 64QAM      | 36      | 39        | 19.29                 | 19.31                    | 19.19                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 19.30                 | 19.28                    | 19.29                  |                     |          |
| Channel         |            |         |           | 132022                | 132322                   | 132622                 | 20.5                | 0        |
| Frequency (MHz) |            |         |           | 1715                  | 1745                     | 1775                   |                     |          |
| 10              | QPSK       | 1       | 0         | 19.52                 | 19.55                    | 19.54                  |                     |          |
| 10              | QPSK       | 1       | 25        | 19.56                 | 19.55                    | 19.53                  | 20.5                | 0        |
| 10              | QPSK       | 1       | 49        | 19.56                 | 19.46                    | 19.49                  |                     |          |
| 10              | QPSK       | 25      | 0         | 19.48                 | 19.56                    | 19.40                  | 20.5                | 0        |
| 10              | QPSK       | 25      | 12        | 19.27                 | 19.27                    | 19.23                  |                     |          |



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|                 |       |    |    |        |        |        |                        |             |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| 10              | QPSK  | 25 | 25 | 19.22  | 19.26  | 19.16  |                        |             |
| 10              | QPSK  | 50 | 0  | 19.33  | 19.43  | 19.30  |                        |             |
| 10              | 16QAM | 1  | 0  | 19.08  | 19.10  | 19.11  |                        |             |
| 10              | 16QAM | 1  | 25 | 19.05  | 19.14  | 19.10  | 20.5                   | 0           |
| 10              | 16QAM | 1  | 49 | 19.08  | 19.06  | 19.00  |                        |             |
| 10              | 16QAM | 25 | 0  | 19.05  | 19.17  | 19.08  |                        |             |
| 10              | 16QAM | 25 | 12 | 19.22  | 19.14  | 19.06  | 20.5                   | 0           |
| 10              | 16QAM | 25 | 25 | 19.08  | 19.13  | 19.01  |                        |             |
| 10              | 16QAM | 50 | 0  | 19.16  | 19.10  | 19.10  |                        |             |
| 10              | 64QAM | 1  | 0  | 19.41  | 19.43  | 19.38  | 20.5                   | 0           |
| 10              | 64QAM | 1  | 25 | 19.44  | 19.47  | 19.47  |                        |             |
| 10              | 64QAM | 1  | 49 | 19.31  | 19.42  | 19.38  |                        |             |
| 10              | 64QAM | 25 | 0  | 19.18  | 19.32  | 19.30  | 20.5                   | 0           |
| 10              | 64QAM | 25 | 12 | 19.30  | 19.33  | 19.22  |                        |             |
| 10              | 64QAM | 25 | 25 | 19.30  | 19.31  | 19.20  |                        |             |
| 10              | 64QAM | 50 | 0  | 19.32  | 19.34  | 19.31  |                        |             |
| Channel         |       |    |    | 131997 | 132322 | 132647 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1712.5 | 1745   | 1777.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 19.54  | 19.62  | 19.56  | 20.5                   | 0           |
| 5               | QPSK  | 1  | 12 | 19.54  | 19.62  | 19.47  |                        |             |
| 5               | QPSK  | 1  | 24 | 19.54  | 19.48  | 19.41  |                        |             |
| 5               | QPSK  | 12 | 0  | 19.50  | 19.49  | 19.37  | 20.5                   | 0           |
| 5               | QPSK  | 12 | 7  | 19.23  | 19.29  | 19.19  |                        |             |
| 5               | QPSK  | 12 | 13 | 19.30  | 19.31  | 19.16  |                        |             |
| 5               | QPSK  | 25 | 0  | 19.35  | 19.43  | 19.32  | 20.5                   | 0           |
| 5               | 16QAM | 1  | 0  | 19.05  | 19.04  | 19.03  |                        |             |
| 5               | 16QAM | 1  | 12 | 19.08  | 19.07  | 19.09  |                        |             |
| 5               | 16QAM | 1  | 24 | 19.09  | 18.97  | 18.93  | 20.5                   | 0           |
| 5               | 16QAM | 12 | 0  | 19.08  | 19.18  | 19.08  |                        |             |
| 5               | 16QAM | 12 | 7  | 19.20  | 19.10  | 19.13  |                        |             |
| 5               | 16QAM | 12 | 13 | 19.13  | 19.17  | 19.03  | 20.5                   | 0           |
| 5               | 16QAM | 25 | 0  | 19.21  | 19.08  | 19.12  |                        |             |
| 5               | 64QAM | 1  | 0  | 19.48  | 19.40  | 19.38  |                        |             |
| 5               | 64QAM | 1  | 12 | 19.34  | 19.45  | 19.43  | 20.5                   | 0           |
| 5               | 64QAM | 1  | 24 | 19.32  | 19.34  | 19.31  |                        |             |
| 5               | 64QAM | 12 | 0  | 19.18  | 19.31  | 19.26  |                        |             |
| 5               | 64QAM | 12 | 7  | 19.39  | 19.31  | 19.24  | 20.5                   | 0           |
| 5               | 64QAM | 12 | 13 | 19.29  | 19.29  | 19.20  |                        |             |
| 5               | 64QAM | 25 | 0  | 19.32  | 19.29  | 19.29  |                        |             |
| Channel         |       |    |    | 131987 | 132322 | 132657 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1711.5 | 1745   | 1778.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 19.51  | 19.63  | 19.53  | 20.5                   | 0           |
| 3               | QPSK  | 1  | 8  | 19.51  | 19.63  | 19.55  |                        |             |
| 3               | QPSK  | 1  | 14 | 19.55  | 19.44  | 19.47  |                        |             |
| 3               | QPSK  | 8  | 0  | 19.43  | 19.57  | 19.40  | 20.5                   | 0           |
| 3               | QPSK  | 8  | 4  | 19.19  | 19.30  | 19.25  |                        |             |
| 3               | QPSK  | 8  | 7  | 19.22  | 19.26  | 19.18  |                        |             |
| 3               | QPSK  | 15 | 0  | 19.35  | 19.36  | 19.25  | 20.5                   | 0           |
| 3               | 16QAM | 1  | 0  | 19.02  | 19.08  | 19.07  |                        |             |
| 3               | 16QAM | 1  | 8  | 19.10  | 19.04  | 19.06  |                        |             |
| 3               | 16QAM | 1  | 14 | 19.00  | 19.05  | 18.96  | 20.5                   | 0           |
| 3               | 16QAM | 8  | 0  | 19.07  | 19.16  | 19.07  |                        |             |
| 3               | 16QAM | 8  | 4  | 19.13  | 19.15  | 19.11  |                        |             |
| 3               | 16QAM | 8  | 7  | 19.10  | 19.13  | 19.04  | 20.5                   | 0           |
| 3               | 16QAM | 15 | 0  | 19.21  | 19.10  | 19.06  |                        |             |
| 3               | 64QAM | 1  | 0  | 19.38  | 19.45  | 19.46  | 20.5                   | 0           |



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|                 |       |    |    |        |        |        |                        |             |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| 3               | 64QAM | 1  | 8  | 19.36  | 19.54  | 19.42  | 20.5                   | 0           |
| 3               | 64QAM | 1  | 14 | 19.34  | 19.42  | 19.39  |                        |             |
| 3               | 64QAM | 8  | 0  | 19.26  | 19.37  | 19.27  |                        |             |
| 3               | 64QAM | 8  | 4  | 19.29  | 19.31  | 19.28  |                        |             |
| 3               | 64QAM | 8  | 7  | 19.22  | 19.25  | 19.17  |                        |             |
| 3               | 64QAM | 15 | 0  | 19.27  | 19.31  | 19.23  |                        |             |
| Channel         |       |    |    | 131979 | 132322 | 132665 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1710.7 | 1745   | 1779.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 19.51  | 19.60  | 19.55  | 20.5                   | 0           |
| 1.4             | QPSK  | 1  | 3  | 19.47  | 19.61  | 19.55  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 19.51  | 19.47  | 19.45  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 19.46  | 19.57  | 19.44  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 19.20  | 19.33  | 19.25  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 19.27  | 19.28  | 19.17  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 19.35  | 19.44  | 19.24  | 20.5                   | 0           |
| 1.4             | 16QAM | 1  | 0  | 19.10  | 19.03  | 19.03  | 20.5                   | 0           |
| 1.4             | 16QAM | 1  | 3  | 19.02  | 19.10  | 19.04  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 19.09  | 19.07  | 18.99  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 19.09  | 19.19  | 19.12  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 19.16  | 19.20  | 19.04  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 19.06  | 19.11  | 18.98  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 19.20  | 19.08  | 19.05  | 20.5                   | 0           |
| 1.4             | 64QAM | 1  | 0  | 19.48  | 19.48  | 19.47  | 20.5                   | 0           |
| 1.4             | 64QAM | 1  | 3  | 19.39  | 19.49  | 19.48  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 19.34  | 19.39  | 19.36  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 19.27  | 19.31  | 19.23  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 19.30  | 19.35  | 19.24  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 19.28  | 19.25  | 19.25  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 19.31  | 19.30  | 19.28  | 20.5                   | 0           |

**<Hotspot 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 18700                    | 18900                       | 19100                     |                        |             |
| Frequency (MHz) |            |         |           | 1860                     | 1880                        | 1900                      |                        |             |
| 20              | QPSK       | 1       | 0         | 18.22                    | 18.17                       | 18.16                     | 18.5                   | 0           |
| 20              | QPSK       | 1       | 49        | 18.11                    | 18.00                       | 18.02                     |                        |             |
| 20              | QPSK       | 1       | 99        | 18.07                    | 18.03                       | 18.01                     |                        |             |
| 20              | QPSK       | 50      | 0         | 18.16                    | 18.12                       | 18.13                     | 18.5                   | 0           |
| 20              | QPSK       | 50      | 24        | 18.09                    | 17.95                       | 18.07                     |                        |             |
| 20              | QPSK       | 50      | 50        | 17.88                    | 17.84                       | 18.05                     |                        |             |
| 20              | QPSK       | 100     | 0         | 18.15                    | 18.05                       | 18.05                     | 18.5                   | 0           |
| 20              | 16QAM      | 1       | 0         | 17.48                    | 17.82                       | 17.92                     |                        |             |
| 20              | 16QAM      | 1       | 49        | 17.40                    | 17.76                       | 17.93                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 17.67                    | 17.71                       | 17.48                     | 18.5                   | 0           |
| 20              | 16QAM      | 50      | 0         | 17.72                    | 18.04                       | 17.72                     |                        |             |
| 20              | 16QAM      | 50      | 24        | 17.70                    | 18.04                       | 17.71                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 18.01                    | 17.96                       | 17.93                     | 18.5                   | 0           |
| 20              | 16QAM      | 100     | 0         | 18.03                    | 18.01                       | 17.66                     |                        |             |
| 20              | 64QAM      | 1       | 0         | 17.47                    | 17.67                       | 17.67                     |                        |             |
| 20              | 64QAM      | 1       | 49        | 17.42                    | 17.71                       | 17.73                     | 18.5                   | 0           |
| 20              | 64QAM      | 1       | 99        | 17.65                    | 17.71                       | 17.73                     |                        |             |
| 20              | 64QAM      | 50      | 0         | 17.69                    | 18.06                       | 17.73                     |                        |             |
| 20              | 64QAM      | 50      | 24        | 17.74                    | 18.06                       | 17.72                     | 18.5                   | 0           |
| 20              | 64QAM      | 50      | 50        | 17.56                    | 17.96                       | 17.69                     |                        |             |
| 20              | 64QAM      | 100     | 0         | 17.61                    | 18.02                       | 17.72                     |                        |             |
| Channel         |            |         |           | 18675                    | 18900                       | 19125                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1857.5                   | 1880                        | 1902.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 18.16                    | 18.17                       | 18.06                     | 18.5                   | 0           |
| 15              | QPSK       | 1       | 37        | 18.09                    | 17.95                       | 17.96                     |                        |             |
| 15              | QPSK       | 1       | 74        | 18.05                    | 18.02                       | 17.92                     |                        |             |
| 15              | QPSK       | 36      | 0         | 18.15                    | 18.04                       | 18.12                     | 18.5                   | 0           |
| 15              | QPSK       | 36      | 20        | 17.99                    | 17.85                       | 17.97                     |                        |             |
| 15              | QPSK       | 36      | 39        | 17.87                    | 17.82                       | 17.96                     |                        |             |
| 15              | QPSK       | 75      | 0         | 18.07                    | 18.04                       | 18.03                     | 18.5                   | 0           |
| 15              | 16QAM      | 1       | 0         | 17.43                    | 17.72                       | 17.82                     |                        |             |
| 15              | 16QAM      | 1       | 37        | 17.32                    | 17.75                       | 17.86                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 17.61                    | 17.63                       | 17.48                     | 18.5                   | 0           |
| 15              | 16QAM      | 36      | 0         | 17.71                    | 17.96                       | 17.68                     |                        |             |
| 15              | 16QAM      | 36      | 20        | 17.67                    | 18.02                       | 17.69                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 17.99                    | 17.94                       | 17.93                     | 18.5                   | 0           |
| 15              | 16QAM      | 75      | 0         | 17.99                    | 17.97                       | 17.59                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 17.45                    | 17.59                       | 17.62                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 17.40                    | 17.70                       | 17.72                     | 18.5                   | 0           |
| 15              | 64QAM      | 1       | 74        | 17.57                    | 17.67                       | 17.64                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 17.66                    | 17.98                       | 17.64                     |                        |             |
| 15              | 64QAM      | 36      | 20        | 17.66                    | 18.06                       | 17.67                     | 18.5                   | 0           |
| 15              | 64QAM      | 36      | 39        | 17.50                    | 17.90                       | 17.59                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 17.54                    | 18.00                       | 17.71                     |                        |             |
| Channel         |            |         |           | 18650                    | 18900                       | 19150                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1855                     | 1880                        | 1905                      |                        |             |
| 10              | QPSK       | 1       | 0         | 18.21                    | 18.07                       | 18.15                     | 18.5                   | 0           |
| 10              | QPSK       | 1       | 25        | 18.02                    | 18.00                       | 17.96                     |                        |             |
| 10              | QPSK       | 1       | 49        | 17.98                    | 18.03                       | 17.96                     |                        |             |



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|                 |       |    |    |        |       |        |                        |             |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| 10              | QPSK  | 25 | 0  | 18.06  | 18.02 | 18.12  | 18.5                   | 0           |
| 10              | QPSK  | 25 | 12 | 18.05  | 17.91 | 18.03  |                        |             |
| 10              | QPSK  | 25 | 25 | 17.79  | 17.78 | 17.97  |                        |             |
| 10              | QPSK  | 50 | 0  | 18.09  | 17.95 | 18.02  |                        |             |
| 10              | 16QAM | 1  | 0  | 17.40  | 17.82 | 17.87  | 18.5                   | 0           |
| 10              | 16QAM | 1  | 25 | 17.30  | 17.67 | 17.92  |                        |             |
| 10              | 16QAM | 1  | 49 | 17.58  | 17.71 | 17.42  |                        |             |
| 10              | 16QAM | 25 | 0  | 17.64  | 17.94 | 17.68  | 18.5                   | 0           |
| 10              | 16QAM | 25 | 12 | 17.64  | 17.98 | 17.62  |                        |             |
| 10              | 16QAM | 25 | 25 | 18.01  | 17.94 | 17.88  |                        |             |
| 10              | 16QAM | 50 | 0  | 17.97  | 17.98 | 17.57  |                        |             |
| 10              | 64QAM | 1  | 0  | 17.45  | 17.66 | 17.57  | 18.5                   | 0           |
| 10              | 64QAM | 1  | 25 | 17.33  | 17.61 | 17.70  |                        |             |
| 10              | 64QAM | 1  | 49 | 17.62  | 17.64 | 17.70  |                        |             |
| 10              | 64QAM | 25 | 0  | 17.69  | 17.98 | 17.70  | 18.5                   | 0           |
| 10              | 64QAM | 25 | 12 | 17.73  | 17.99 | 17.69  |                        |             |
| 10              | 64QAM | 25 | 25 | 17.49  | 17.91 | 17.68  |                        |             |
| 10              | 64QAM | 50 | 0  | 17.53  | 17.96 | 17.62  |                        |             |
| Channel         |       |    |    | 18625  | 18900 | 19175  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1852.5 | 1880  | 1907.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 18.12  | 18.15 | 18.12  | 18.5                   | 0           |
| 5               | QPSK  | 1  | 12 | 18.07  | 17.99 | 17.98  |                        |             |
| 5               | QPSK  | 1  | 24 | 17.99  | 17.94 | 17.95  |                        |             |
| 5               | QPSK  | 12 | 0  | 18.14  | 18.02 | 18.05  | 18.5                   | 0           |
| 5               | QPSK  | 12 | 7  | 18.02  | 17.94 | 18.06  |                        |             |
| 5               | QPSK  | 12 | 13 | 17.87  | 17.84 | 18.04  |                        |             |
| 5               | QPSK  | 25 | 0  | 18.14  | 18.03 | 17.95  |                        |             |
| 5               | 16QAM | 1  | 0  | 17.39  | 17.82 | 17.84  | 18.5                   | 0           |
| 5               | 16QAM | 1  | 12 | 17.31  | 17.70 | 17.83  |                        |             |
| 5               | 16QAM | 1  | 24 | 17.63  | 17.68 | 17.47  |                        |             |
| 5               | 16QAM | 12 | 0  | 17.70  | 17.94 | 17.71  | 18.5                   | 0           |
| 5               | 16QAM | 12 | 7  | 17.67  | 18.03 | 17.69  |                        |             |
| 5               | 16QAM | 12 | 13 | 17.92  | 17.93 | 17.88  |                        |             |
| 5               | 16QAM | 25 | 0  | 17.95  | 17.96 | 17.66  |                        |             |
| 5               | 64QAM | 1  | 0  | 17.47  | 17.57 | 17.61  | 18.5                   | 0           |
| 5               | 64QAM | 1  | 12 | 17.32  | 17.71 | 17.66  |                        |             |
| 5               | 64QAM | 1  | 24 | 17.57  | 17.61 | 17.70  |                        |             |
| 5               | 64QAM | 12 | 0  | 17.63  | 17.97 | 17.64  | 18.5                   | 0           |
| 5               | 64QAM | 12 | 7  | 17.74  | 18.00 | 17.65  |                        |             |
| 5               | 64QAM | 12 | 13 | 17.50  | 17.94 | 17.60  |                        |             |
| 5               | 64QAM | 25 | 0  | 17.60  | 17.97 | 17.72  |                        |             |
| Channel         |       |    |    | 18615  | 18900 | 19185  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1851.5 | 1880  | 1908.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 18.17  | 18.16 | 18.14  | 18.5                   | 0           |
| 3               | QPSK  | 1  | 8  | 18.09  | 17.99 | 17.99  |                        |             |
| 3               | QPSK  | 1  | 14 | 17.97  | 18.03 | 17.97  |                        |             |
| 3               | QPSK  | 8  | 0  | 18.15  | 18.09 | 18.11  | 18.5                   | 0           |
| 3               | QPSK  | 8  | 4  | 18.01  | 17.87 | 17.98  |                        |             |
| 3               | QPSK  | 8  | 7  | 17.85  | 17.84 | 18.01  |                        |             |
| 3               | QPSK  | 15 | 0  | 18.12  | 18.05 | 17.97  |                        |             |
| 3               | 16QAM | 1  | 0  | 17.39  | 17.78 | 17.87  | 18.5                   | 0           |
| 3               | 16QAM | 1  | 8  | 17.38  | 17.74 | 17.93  |                        |             |
| 3               | 16QAM | 1  | 14 | 17.65  | 17.67 | 17.43  |                        |             |
| 3               | 16QAM | 8  | 0  | 17.65  | 18.02 | 17.63  | 18.5                   | 0           |
| 3               | 16QAM | 8  | 4  | 17.61  | 17.98 | 17.68  |                        |             |
| 3               | 16QAM | 8  | 7  | 17.97  | 17.90 | 17.92  |                        |             |



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|                 |       |    |    |        |       |        |                        |             |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| 3               | 16QAM | 15 | 0  | 18.02  | 18.00 | 17.58  |                        |             |
| 3               | 64QAM | 1  | 0  | 17.41  | 17.62 | 17.62  | 18.5                   | 0           |
| 3               | 64QAM | 1  | 8  | 17.33  | 17.69 | 17.71  |                        |             |
| 3               | 64QAM | 1  | 14 | 17.63  | 17.67 | 17.65  |                        |             |
| 3               | 64QAM | 8  | 0  | 17.62  | 18.01 | 17.67  | 18.5                   | 0           |
| 3               | 64QAM | 8  | 4  | 17.71  | 17.96 | 17.62  |                        |             |
| 3               | 64QAM | 8  | 7  | 17.52  | 17.95 | 17.59  |                        |             |
| 3               | 64QAM | 15 | 0  | 17.51  | 18.01 | 17.69  |                        |             |
| Channel         |       |    |    | 18607  | 18900 | 19193  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1850.7 | 1880  | 1909.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 18.19  | 18.15 | 18.14  | 18.5                   | 0           |
| 1.4             | QPSK  | 1  | 3  | 18.11  | 17.99 | 17.94  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 18.01  | 17.94 | 17.96  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 18.06  | 18.06 | 18.11  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 18.02  | 17.86 | 18.02  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 17.81  | 17.74 | 17.98  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 18.07  | 17.95 | 18.02  | 18.5                   | 0           |
| 1.4             | 16QAM | 1  | 0  | 17.45  | 17.76 | 17.84  | 18.5                   | 0           |
| 1.4             | 16QAM | 1  | 3  | 17.33  | 17.73 | 17.87  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 17.58  | 17.65 | 17.44  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 17.70  | 17.97 | 17.63  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 17.68  | 17.94 | 17.68  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 17.99  | 17.86 | 17.85  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 18.03  | 18.01 | 17.59  | 18.5                   | 0           |
| 1.4             | 64QAM | 1  | 0  | 17.42  | 17.59 | 17.60  | 18.5                   | 0           |
| 1.4             | 64QAM | 1  | 3  | 17.39  | 17.68 | 17.71  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 17.59  | 17.71 | 17.70  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 17.62  | 18.03 | 17.68  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 17.66  | 17.96 | 17.67  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 17.54  | 17.96 | 17.66  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 17.60  | 18.02 | 17.72  | 18.5                   | 0           |



**<LTE Band 4>**

| 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 20050                    | 20175                       | 20300                     | 18.5                   | 0           |
| Frequency (MHz) |            |         |           | 1720                     | 1732.5                      | 1745                      |                        |             |
| 20              | QPSK       | 1       | 0         | 17.97                    | 18.04                       | 18.01                     |                        |             |
| 20              | QPSK       | 1       | 49        | 17.97                    | 17.98                       | 17.96                     | 18.5                   | 0           |
| 20              | QPSK       | 1       | 99        | 17.84                    | 18.00                       | 17.93                     |                        |             |
| 20              | QPSK       | 50      | 0         | 17.75                    | 17.85                       | 17.85                     |                        |             |
| 20              | QPSK       | 50      | 24        | 17.72                    | 17.77                       | 17.83                     | 18.5                   | 0           |
| 20              | QPSK       | 50      | 50        | 17.69                    | 17.81                       | 17.76                     |                        |             |
| 20              | QPSK       | 100     | 0         | 17.70                    | 17.80                       | 17.80                     |                        |             |
| 20              | 16QAM      | 1       | 0         | 17.65                    | 17.66                       | 17.59                     | 18.5                   | 0           |
| 20              | 16QAM      | 1       | 49        | 17.58                    | 17.59                       | 17.64                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 17.51                    | 17.58                       | 17.56                     |                        |             |
| 20              | 16QAM      | 50      | 0         | 17.67                    | 17.66                       | 17.74                     | 18.5                   | 0           |
| 20              | 16QAM      | 50      | 24        | 17.63                    | 17.73                       | 17.69                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 17.56                    | 17.70                       | 17.64                     |                        |             |
| 20              | 16QAM      | 100     | 0         | 17.62                    | 17.71                       | 17.67                     | 18.5                   | 0           |
| 20              | 64QAM      | 1       | 0         | 17.93                    | 17.97                       | 17.92                     |                        |             |
| 20              | 64QAM      | 1       | 49        | 17.87                    | 18.00                       | 17.96                     |                        |             |
| 20              | 64QAM      | 1       | 99        | 17.78                    | 17.91                       | 17.85                     | 18.5                   | 0           |
| 20              | 64QAM      | 50      | 0         | 17.75                    | 17.82                       | 17.84                     |                        |             |
| 20              | 64QAM      | 50      | 24        | 17.80                    | 17.91                       | 17.86                     |                        |             |
| 20              | 64QAM      | 50      | 50        | 17.71                    | 17.80                       | 17.79                     | 18.5                   | 0           |
| 20              | 64QAM      | 100     | 0         | 17.75                    | 17.86                       | 17.83                     |                        |             |
| Channel         |            |         |           | 20025                    | 20175                       | 20325                     | 18.5                   | 0           |
| Frequency (MHz) |            |         |           | 1717.5                   | 1732.5                      | 1747.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 17.92                    | 18.00                       | 18.01                     |                        |             |
| 15              | QPSK       | 1       | 37        | 17.96                    | 17.88                       | 17.93                     | 18.5                   | 0           |
| 15              | QPSK       | 1       | 74        | 17.80                    | 17.93                       | 17.84                     |                        |             |
| 15              | QPSK       | 36      | 0         | 17.74                    | 17.77                       | 17.85                     | 18.5                   | 0           |
| 15              | QPSK       | 36      | 20        | 17.65                    | 17.75                       | 17.77                     |                        |             |
| 15              | QPSK       | 36      | 39        | 17.60                    | 17.73                       | 17.70                     |                        |             |
| 15              | QPSK       | 75      | 0         | 17.69                    | 17.80                       | 17.78                     | 18.5                   | 0           |
| 15              | 16QAM      | 1       | 0         | 17.64                    | 17.60                       | 17.51                     |                        |             |
| 15              | 16QAM      | 1       | 37        | 17.58                    | 17.51                       | 17.56                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 17.45                    | 17.58                       | 17.55                     | 18.5                   | 0           |
| 15              | 16QAM      | 36      | 0         | 17.58                    | 17.61                       | 17.68                     |                        |             |
| 15              | 16QAM      | 36      | 20        | 17.62                    | 17.65                       | 17.66                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 17.54                    | 17.66                       | 17.58                     | 18.5                   | 0           |
| 15              | 16QAM      | 75      | 0         | 17.58                    | 17.61                       | 17.57                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 17.84                    | 17.89                       | 17.83                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 17.77                    | 17.99                       | 17.93                     | 18.5                   | 0           |
| 15              | 64QAM      | 1       | 74        | 17.75                    | 17.87                       | 17.82                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 17.75                    | 17.75                       | 17.76                     |                        |             |
| 15              | 64QAM      | 36      | 20        | 17.76                    | 17.86                       | 17.76                     | 18.5                   | 0           |
| 15              | 64QAM      | 36      | 39        | 17.65                    | 17.79                       | 17.79                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 17.65                    | 17.79                       | 17.74                     |                        |             |
| Channel         |            |         |           | 20000                    | 20175                       | 20350                     | 18.5                   | 0           |
| Frequency (MHz) |            |         |           | 1715                     | 1732.5                      | 1750                      |                        |             |
| 10              | QPSK       | 1       | 0         | 17.96                    | 17.94                       | 17.91                     |                        |             |
| 10              | QPSK       | 1       | 25        | 17.93                    | 17.91                       | 17.88                     | 18.5                   | 0           |
| 10              | QPSK       | 1       | 49        | 17.82                    | 17.99                       | 17.93                     |                        |             |
| 10              | QPSK       | 25      | 0         | 17.71                    | 17.81                       | 17.85                     | 18.5                   | 0           |
| 10              | QPSK       | 25      | 12        | 17.64                    | 17.70                       | 17.73                     |                        |             |



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|                 |       |    |    |        |        |        |                        |             |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| 10              | QPSK  | 25 | 25 | 17.59  | 17.78  | 17.76  |                        |             |
| 10              | QPSK  | 50 | 0  | 17.70  | 17.79  | 17.71  |                        |             |
| 10              | 16QAM | 1  | 0  | 17.58  | 17.60  | 17.53  |                        |             |
| 10              | 16QAM | 1  | 25 | 17.56  | 17.54  | 17.56  | 18.5                   | 0           |
| 10              | 16QAM | 1  | 49 | 17.51  | 17.56  | 17.49  |                        |             |
| 10              | 16QAM | 25 | 0  | 17.61  | 17.65  | 17.70  |                        |             |
| 10              | 16QAM | 25 | 12 | 17.63  | 17.66  | 17.65  | 18.5                   | 0           |
| 10              | 16QAM | 25 | 25 | 17.47  | 17.68  | 17.57  |                        |             |
| 10              | 16QAM | 50 | 0  | 17.53  | 17.70  | 17.60  |                        |             |
| 10              | 64QAM | 1  | 0  | 17.85  | 17.90  | 17.88  | 18.5                   | 0           |
| 10              | 64QAM | 1  | 25 | 17.82  | 17.99  | 17.87  |                        |             |
| 10              | 64QAM | 1  | 49 | 17.78  | 17.81  | 17.78  |                        |             |
| 10              | 64QAM | 25 | 0  | 17.69  | 17.75  | 17.78  | 18.5                   | 0           |
| 10              | 64QAM | 25 | 12 | 17.75  | 17.81  | 17.78  |                        |             |
| 10              | 64QAM | 25 | 25 | 17.64  | 17.77  | 17.72  |                        |             |
| 10              | 64QAM | 50 | 0  | 17.72  | 17.81  | 17.73  |                        |             |
| Channel         |       |    |    | 19975  | 20175  | 20375  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1712.5 | 1732.5 | 1752.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 17.88  | 17.95  | 17.93  | 18.5                   | 0           |
| 5               | QPSK  | 1  | 12 | 17.91  | 17.90  | 17.88  |                        |             |
| 5               | QPSK  | 1  | 24 | 17.79  | 17.91  | 17.85  |                        |             |
| 5               | QPSK  | 12 | 0  | 17.68  | 17.80  | 17.85  | 18.5                   | 0           |
| 5               | QPSK  | 12 | 7  | 17.71  | 17.75  | 17.83  |                        |             |
| 5               | QPSK  | 12 | 13 | 17.65  | 17.76  | 17.70  |                        |             |
| 5               | QPSK  | 25 | 0  | 17.67  | 17.80  | 17.70  | 18.5                   | 0           |
| 5               | 16QAM | 1  | 0  | 17.64  | 17.63  | 17.50  |                        |             |
| 5               | 16QAM | 1  | 12 | 17.56  | 17.53  | 17.63  |                        |             |
| 5               | 16QAM | 1  | 24 | 17.41  | 17.48  | 17.50  | 18.5                   | 0           |
| 5               | 16QAM | 12 | 0  | 17.63  | 17.61  | 17.70  |                        |             |
| 5               | 16QAM | 12 | 7  | 17.63  | 17.67  | 17.60  |                        |             |
| 5               | 16QAM | 12 | 13 | 17.47  | 17.68  | 17.54  | 18.5                   | 0           |
| 5               | 16QAM | 25 | 0  | 17.55  | 17.66  | 17.66  |                        |             |
| 5               | 64QAM | 1  | 0  | 17.88  | 17.95  | 17.90  |                        |             |
| 5               | 64QAM | 1  | 12 | 17.78  | 18.00  | 17.88  | 18.5                   | 0           |
| 5               | 64QAM | 1  | 24 | 17.78  | 17.91  | 17.77  |                        |             |
| 5               | 64QAM | 12 | 0  | 17.69  | 17.75  | 17.79  |                        |             |
| 5               | 64QAM | 12 | 7  | 17.71  | 17.81  | 17.81  | 18.5                   | 0           |
| 5               | 64QAM | 12 | 13 | 17.66  | 17.79  | 17.72  |                        |             |
| 5               | 64QAM | 25 | 0  | 17.72  | 17.86  | 17.75  |                        |             |
| Channel         |       |    |    | 19965  | 20175  | 20385  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1711.5 | 1732.5 | 1753.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 17.96  | 17.98  | 17.96  | 18.5                   | 0           |
| 3               | QPSK  | 1  | 8  | 17.94  | 17.94  | 17.88  |                        |             |
| 3               | QPSK  | 1  | 14 | 17.81  | 17.91  | 17.88  |                        |             |
| 3               | QPSK  | 8  | 0  | 17.70  | 17.84  | 17.79  | 18.5                   | 0           |
| 3               | QPSK  | 8  | 4  | 17.71  | 17.77  | 17.82  |                        |             |
| 3               | QPSK  | 8  | 7  | 17.68  | 17.78  | 17.66  |                        |             |
| 3               | QPSK  | 15 | 0  | 17.65  | 17.77  | 17.74  | 18.5                   | 0           |
| 3               | 16QAM | 1  | 0  | 17.59  | 17.66  | 17.58  |                        |             |
| 3               | 16QAM | 1  | 8  | 17.55  | 17.56  | 17.56  |                        |             |
| 3               | 16QAM | 1  | 14 | 17.42  | 17.55  | 17.48  | 18.5                   | 0           |
| 3               | 16QAM | 8  | 0  | 17.66  | 17.59  | 17.71  |                        |             |
| 3               | 16QAM | 8  | 4  | 17.57  | 17.65  | 17.68  |                        |             |
| 3               | 16QAM | 8  | 7  | 17.55  | 17.62  | 17.54  | 18.5                   | 0           |
| 3               | 16QAM | 15 | 0  | 17.58  | 17.65  | 17.58  |                        |             |
| 3               | 64QAM | 1  | 0  | 17.92  | 17.97  | 17.84  | 18.5                   | 0           |



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|                 |       |    |    |        |        |        |                        |             |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| 3               | 64QAM | 1  | 8  | 17.83  | 17.98  | 17.90  | 18.5                   | 0           |
| 3               | 64QAM | 1  | 14 | 17.78  | 17.90  | 17.81  |                        |             |
| 3               | 64QAM | 8  | 0  | 17.70  | 17.81  | 17.77  |                        |             |
| 3               | 64QAM | 8  | 4  | 17.75  | 17.83  | 17.85  |                        |             |
| 3               | 64QAM | 8  | 7  | 17.65  | 17.71  | 17.69  |                        |             |
| 3               | 64QAM | 15 | 0  | 17.75  | 17.79  | 17.77  |                        |             |
| Channel         |       |    |    | 19957  | 20175  | 20393  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1710.7 | 1732.5 | 1754.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 17.95  | 18.01  | 18.01  | 18.5                   | 0           |
| 1.4             | QPSK  | 1  | 3  | 17.87  | 17.96  | 17.93  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 17.80  | 17.96  | 17.90  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 17.75  | 17.79  | 17.78  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 17.68  | 17.67  | 17.77  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 17.61  | 17.72  | 17.73  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 17.65  | 17.77  | 17.77  | 18.5                   | 0           |
| 1.4             | 16QAM | 1  | 0  | 17.62  | 17.65  | 17.55  | 18.5                   | 0           |
| 1.4             | 16QAM | 1  | 3  | 17.48  | 17.59  | 17.58  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 17.42  | 17.58  | 17.55  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 17.65  | 17.57  | 17.68  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 17.57  | 17.71  | 17.66  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 17.46  | 17.68  | 17.64  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 17.61  | 17.64  | 17.64  | 18.5                   | 0           |
| 1.4             | 64QAM | 1  | 0  | 17.92  | 17.89  | 17.87  | 18.5                   | 0           |
| 1.4             | 64QAM | 1  | 3  | 17.77  | 17.93  | 17.86  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 17.77  | 17.84  | 17.83  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 17.72  | 17.75  | 17.76  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 17.73  | 17.88  | 17.77  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 17.62  | 17.78  | 17.77  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 17.69  | 17.81  | 17.75  | 18.5                   | 0           |



**<LTE Band 5>**

| 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 20450                    | 20525                       | 20600                     |                        |             |
| Frequency (MHz) |            |         |           | 829                      | 836.5                       | 844                       |                        |             |
| 10              | QPSK       | 1       | 0         | 22.65                    | 22.59                       | 22.81                     | 24                     | 0           |
| 10              | QPSK       | 1       | 25        | 22.64                    | 22.87                       | 22.78                     |                        |             |
| 10              | QPSK       | 1       | 49        | 22.54                    | 22.54                       | 22.79                     |                        |             |
| 10              | QPSK       | 25      | 0         | 21.67                    | 21.67                       | 21.85                     | 23                     | 1           |
| 10              | QPSK       | 25      | 12        | 21.71                    | 21.73                       | 21.85                     |                        |             |
| 10              | QPSK       | 25      | 25        | 21.60                    | 21.61                       | 21.77                     |                        |             |
| 10              | QPSK       | 50      | 0         | 21.64                    | 21.68                       | 21.83                     |                        |             |
| 10              | 16QAM      | 1       | 0         | 22.02                    | 21.96                       | 22.22                     | 23                     | 1           |
| 10              | 16QAM      | 1       | 25        | 22.01                    | 22.04                       | 22.12                     |                        |             |
| 10              | 16QAM      | 1       | 49        | 21.95                    | 21.92                       | 22.17                     |                        |             |
| 10              | 16QAM      | 25      | 0         | 20.76                    | 20.83                       | 20.95                     | 22                     | 2           |
| 10              | 16QAM      | 25      | 12        | 20.76                    | 20.84                       | 20.96                     |                        |             |
| 10              | 16QAM      | 25      | 25        | 20.73                    | 20.71                       | 20.86                     |                        |             |
| 10              | 16QAM      | 50      | 0         | 20.76                    | 20.79                       | 20.95                     |                        |             |
| 10              | 64QAM      | 1       | 0         | 20.88                    | 20.86                       | 21.10                     | 22                     | 2           |
| 10              | 64QAM      | 1       | 25        | 20.88                    | 20.92                       | 21.04                     |                        |             |
| 10              | 64QAM      | 1       | 49        | 20.80                    | 20.83                       | 21.07                     |                        |             |
| 10              | 64QAM      | 25      | 0         | 19.79                    | 19.82                       | 19.96                     | 21                     | 3           |
| 10              | 64QAM      | 25      | 12        | 19.77                    | 19.84                       | 19.97                     |                        |             |
| 10              | 64QAM      | 25      | 25        | 19.75                    | 19.74                       | 19.88                     |                        |             |
| 10              | 64QAM      | 50      | 0         | 19.76                    | 19.79                       | 19.94                     |                        |             |
| Channel         |            |         |           | 20425                    | 20525                       | 20625                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 826.5                    | 836.5                       | 846.5                     |                        |             |
| 5               | QPSK       | 1       | 0         | 22.63                    | 22.56                       | 22.84                     | 24                     | 0           |
| 5               | QPSK       | 1       | 12        | 22.66                    | 22.63                       | 22.83                     |                        |             |
| 5               | QPSK       | 1       | 24        | 22.60                    | 22.57                       | 22.81                     |                        |             |
| 5               | QPSK       | 12      | 0         | 21.69                    | 21.68                       | 21.85                     | 23                     | 1           |
| 5               | QPSK       | 12      | 7         | 21.72                    | 21.68                       | 21.88                     |                        |             |
| 5               | QPSK       | 12      | 13        | 21.65                    | 21.67                       | 21.82                     |                        |             |
| 5               | QPSK       | 25      | 0         | 21.65                    | 21.68                       | 21.85                     |                        |             |
| 5               | 16QAM      | 1       | 0         | 22.02                    | 21.94                       | 22.18                     | 23                     | 1           |
| 5               | 16QAM      | 1       | 12        | 22.03                    | 22.00                       | 22.16                     |                        |             |
| 5               | 16QAM      | 1       | 24        | 21.93                    | 21.99                       | 22.23                     |                        |             |
| 5               | 16QAM      | 12      | 0         | 20.80                    | 20.80                       | 20.99                     | 22                     | 2           |
| 5               | 16QAM      | 12      | 7         | 20.82                    | 20.83                       | 21.03                     |                        |             |
| 5               | 16QAM      | 12      | 13        | 20.77                    | 20.78                       | 20.94                     |                        |             |
| 5               | 16QAM      | 25      | 0         | 20.77                    | 20.79                       | 20.97                     |                        |             |
| 5               | 64QAM      | 1       | 0         | 20.92                    | 20.79                       | 21.09                     | 22                     | 2           |
| 5               | 64QAM      | 1       | 12        | 20.91                    | 20.91                       | 21.07                     |                        |             |
| 5               | 64QAM      | 1       | 24        | 20.86                    | 20.88                       | 21.12                     |                        |             |
| 5               | 64QAM      | 12      | 0         | 19.80                    | 19.81                       | 19.96                     | 21                     | 3           |
| 5               | 64QAM      | 12      | 7         | 19.83                    | 19.83                       | 20.00                     |                        |             |
| 5               | 64QAM      | 12      | 13        | 19.77                    | 19.76                       | 19.93                     |                        |             |
| 5               | 64QAM      | 25      | 0         | 19.79                    | 19.80                       | 19.98                     |                        |             |
| Channel         |            |         |           | 20415                    | 20525                       | 20635                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 825.5                    | 836.5                       | 847.5                     |                        |             |
| 3               | QPSK       | 1       | 0         | 22.64                    | 22.61                       | 22.80                     | 24                     | 0           |
| 3               | QPSK       | 1       | 8         | 22.60                    | 22.57                       | 22.84                     |                        |             |
| 3               | QPSK       | 1       | 14        | 22.58                    | 22.55                       | 22.85                     |                        |             |
| 3               | QPSK       | 8       | 0         | 21.65                    | 21.63                       | 21.85                     | 23                     | 1           |
| 3               | QPSK       | 8       | 4         | 21.66                    | 21.67                       | 21.85                     |                        |             |



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|                 |       |    |    |       |       |       |                        |             |
|-----------------|-------|----|----|-------|-------|-------|------------------------|-------------|
| 3               | QPSK  | 8  | 7  | 21.65 | 21.64 | 21.93 |                        |             |
| 3               | QPSK  | 15 | 0  | 21.64 | 21.62 | 21.84 |                        |             |
| 3               | 16QAM | 1  | 0  | 22.00 | 21.98 | 22.14 |                        |             |
| 3               | 16QAM | 1  | 8  | 21.95 | 22.01 | 22.20 | 23                     | 1           |
| 3               | 16QAM | 1  | 14 | 21.95 | 21.97 | 22.18 |                        |             |
| 3               | 16QAM | 8  | 0  | 20.81 | 20.81 | 21.00 |                        |             |
| 3               | 16QAM | 8  | 4  | 20.84 | 20.84 | 21.02 | 22                     | 2           |
| 3               | 16QAM | 8  | 7  | 20.81 | 20.80 | 21.09 |                        |             |
| 3               | 16QAM | 15 | 0  | 20.76 | 20.75 | 20.95 |                        |             |
| 3               | 64QAM | 1  | 0  | 20.87 | 20.87 | 21.06 | 22                     | 2           |
| 3               | 64QAM | 1  | 8  | 20.88 | 20.87 | 21.12 |                        |             |
| 3               | 64QAM | 1  | 14 | 20.87 | 20.87 | 21.11 |                        |             |
| 3               | 64QAM | 8  | 0  | 19.78 | 19.78 | 19.96 | 21                     | 3           |
| 3               | 64QAM | 8  | 4  | 19.80 | 19.80 | 19.96 |                        |             |
| 3               | 64QAM | 8  | 7  | 19.78 | 19.78 | 20.05 |                        |             |
| 3               | 64QAM | 15 | 0  | 19.74 | 19.73 | 19.94 |                        |             |
| Channel         |       |    |    | 20407 | 20525 | 20643 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 824.7 | 836.5 | 848.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 22.62 | 22.55 | 22.84 | 24                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 22.65 | 22.63 | 22.81 |                        |             |
| 1.4             | QPSK  | 1  | 5  | 22.58 | 22.55 | 22.83 |                        |             |
| 1.4             | QPSK  | 3  | 0  | 22.63 | 22.60 | 22.86 |                        |             |
| 1.4             | QPSK  | 3  | 1  | 22.67 | 22.64 | 22.81 |                        |             |
| 1.4             | QPSK  | 3  | 3  | 22.61 | 22.61 | 22.84 |                        |             |
| 1.4             | QPSK  | 6  | 0  | 21.63 | 21.61 | 21.91 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 0  | 21.95 | 21.93 | 22.21 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 3  | 21.97 | 22.05 | 22.32 |                        |             |
| 1.4             | 16QAM | 1  | 5  | 21.94 | 21.93 | 22.22 |                        |             |
| 1.4             | 16QAM | 3  | 0  | 21.74 | 21.75 | 21.99 |                        |             |
| 1.4             | 16QAM | 3  | 1  | 21.80 | 21.76 | 22.00 |                        |             |
| 1.4             | 16QAM | 3  | 3  | 21.71 | 21.72 | 21.94 |                        |             |
| 1.4             | 16QAM | 6  | 0  | 20.80 | 20.76 | 21.04 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 0  | 20.85 | 20.85 | 21.11 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 3  | 20.94 | 20.93 | 21.19 |                        |             |
| 1.4             | 64QAM | 1  | 5  | 20.84 | 20.79 | 21.08 |                        |             |
| 1.4             | 64QAM | 3  | 0  | 20.80 | 20.79 | 21.03 |                        |             |
| 1.4             | 64QAM | 3  | 1  | 20.85 | 20.78 | 21.03 |                        |             |
| 1.4             | 64QAM | 3  | 3  | 20.77 | 20.78 | 21.01 |                        |             |
| 1.4             | 64QAM | 6  | 0  | 19.73 | 19.75 | 20.01 | 21                     | 3           |



**<LTE Band 7>**

| 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 20850                    | 21100                       | 21350                     |                        |             |
| Frequency (MHz) |            |         |           | 2510                     | 2535                        | 2560                      |                        |             |
| 20              | QPSK       | 1       | 0         | 21.09                    | 21.12                       | 21.17                     | 22                     | 0           |
| 20              | QPSK       | 1       | 49        | 21.07                    | 21.00                       | 21.15                     |                        |             |
| 20              | QPSK       | 1       | 99        | 21.04                    | 21.01                       | 21.12                     |                        |             |
| 20              | QPSK       | 50      | 0         | 21.10                    | 21.05                       | 21.13                     | 22                     | 0           |
| 20              | QPSK       | 50      | 24        | 21.08                    | 21.03                       | 21.03                     |                        |             |
| 20              | QPSK       | 50      | 50        | 21.06                    | 21.02                       | 21.04                     |                        |             |
| 20              | QPSK       | 100     | 0         | 21.03                    | 21.00                       | 21.09                     | 22                     | 0           |
| 20              | 16QAM      | 1       | 0         | 20.73                    | 20.78                       | 21.11                     |                        |             |
| 20              | 16QAM      | 1       | 49        | 20.78                    | 20.84                       | 21.05                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 20.84                    | 20.74                       | 21.07                     | 22                     | 0           |
| 20              | 16QAM      | 50      | 0         | 20.74                    | 20.76                       | 20.96                     |                        |             |
| 20              | 16QAM      | 50      | 24        | 20.76                    | 20.65                       | 20.87                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 20.65                    | 20.56                       | 20.93                     | 22                     | 0           |
| 20              | 16QAM      | 100     | 0         | 20.56                    | 20.62                       | 20.90                     |                        |             |
| 20              | 64QAM      | 1       | 0         | 20.62                    | 20.59                       | 21.09                     |                        |             |
| 20              | 64QAM      | 1       | 49        | 20.59                    | 20.78                       | 21.10                     | 22                     | 0           |
| 20              | 64QAM      | 1       | 99        | 20.78                    | 20.82                       | 21.06                     |                        |             |
| 20              | 64QAM      | 50      | 0         | 20.26                    | 20.10                       | 20.28                     |                        |             |
| 20              | 64QAM      | 50      | 24        | 20.30                    | 20.11                       | 20.19                     | 21                     | 1           |
| 20              | 64QAM      | 50      | 50        | 20.20                    | 20.17                       | 20.21                     |                        |             |
| 20              | 64QAM      | 100     | 0         | 20.18                    | 20.13                       | 20.21                     |                        |             |
| Channel         |            |         |           | 20825                    | 21100                       | 21375                     |                        |             |
| Frequency (MHz) |            |         |           | 2507.5                   | 2535                        | 2562.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 21.07                    | 21.08                       | 21.13                     | 22                     | 0           |
| 15              | QPSK       | 1       | 37        | 21.00                    | 20.99                       | 21.08                     |                        |             |
| 15              | QPSK       | 1       | 74        | 21.00                    | 20.95                       | 21.02                     |                        |             |
| 15              | QPSK       | 36      | 0         | 21.01                    | 20.95                       | 21.08                     | 22                     | 0           |
| 15              | QPSK       | 36      | 20        | 21.04                    | 21.01                       | 20.93                     |                        |             |
| 15              | QPSK       | 36      | 39        | 20.99                    | 20.98                       | 20.95                     |                        |             |
| 15              | QPSK       | 75      | 0         | 21.00                    | 20.91                       | 21.02                     | 22                     | 0           |
| 15              | 16QAM      | 1       | 0         | 20.63                    | 20.77                       | 21.10                     |                        |             |
| 15              | 16QAM      | 1       | 37        | 20.68                    | 20.83                       | 20.97                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 20.80                    | 20.65                       | 21.03                     | 22                     | 0           |
| 15              | 16QAM      | 36      | 0         | 20.71                    | 20.68                       | 20.88                     |                        |             |
| 15              | 16QAM      | 36      | 20        | 20.68                    | 20.56                       | 20.80                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 20.58                    | 20.55                       | 20.86                     | 22                     | 0           |
| 15              | 16QAM      | 75      | 0         | 20.55                    | 20.59                       | 20.86                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 20.60                    | 20.49                       | 21.07                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 20.50                    | 20.74                       | 21.03                     | 22                     | 0           |
| 15              | 64QAM      | 1       | 74        | 20.77                    | 20.74                       | 20.97                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 20.17                    | 20.08                       | 20.25                     |                        |             |
| 15              | 64QAM      | 36      | 20        | 20.21                    | 20.10                       | 20.09                     | 21                     | 1           |
| 15              | 64QAM      | 36      | 39        | 20.11                    | 20.13                       | 20.18                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 20.13                    | 20.10                       | 20.15                     |                        |             |
| Channel         |            |         |           | 20800                    | 21100                       | 21400                     |                        |             |
| Frequency (MHz) |            |         |           | 2505                     | 2535                        | 2565                      |                        |             |
| 10              | QPSK       | 1       | 0         | 21.08                    | 21.10                       | 21.16                     | 22                     | 0           |
| 10              | QPSK       | 1       | 25        | 20.97                    | 20.97                       | 21.14                     |                        |             |
| 10              | QPSK       | 1       | 49        | 21.02                    | 20.96                       | 21.12                     |                        |             |
| 10              | QPSK       | 25      | 0         | 21.02                    | 20.97                       | 21.07                     | 22                     | 0           |
| 10              | QPSK       | 25      | 12        | 21.06                    | 20.94                       | 21.02                     |                        |             |



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|                 |       |    |    |        |       |        |                        |             |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| 10              | QPSK  | 25 | 25 | 21.05  | 20.96 | 20.94  |                        |             |
| 10              | QPSK  | 50 | 0  | 20.95  | 20.99 | 21.02  |                        |             |
| 10              | 16QAM | 1  | 0  | 20.69  | 20.70 | 21.08  |                        |             |
| 10              | 16QAM | 1  | 25 | 20.74  | 20.83 | 21.05  | 22                     | 0           |
| 10              | 16QAM | 1  | 49 | 20.78  | 20.74 | 21.04  |                        |             |
| 10              | 16QAM | 25 | 0  | 20.71  | 20.76 | 20.90  |                        |             |
| 10              | 16QAM | 25 | 12 | 20.66  | 20.62 | 20.86  | 22                     | 0           |
| 10              | 16QAM | 25 | 25 | 20.58  | 20.46 | 20.86  |                        |             |
| 10              | 16QAM | 50 | 0  | 20.47  | 20.61 | 20.81  |                        |             |
| 10              | 64QAM | 1  | 0  | 20.52  | 20.53 | 21.01  | 22                     | 0           |
| 10              | 64QAM | 1  | 25 | 20.50  | 20.77 | 21.08  |                        |             |
| 10              | 64QAM | 1  | 49 | 20.68  | 20.74 | 21.06  |                        |             |
| 10              | 64QAM | 25 | 0  | 20.18  | 20.05 | 20.23  | 21                     | 1           |
| 10              | 64QAM | 25 | 12 | 20.30  | 20.02 | 20.09  |                        |             |
| 10              | 64QAM | 25 | 25 | 20.19  | 20.14 | 20.11  |                        |             |
| 10              | 64QAM | 50 | 0  | 20.12  | 20.13 | 20.20  |                        |             |
| Channel         |       |    |    | 20775  | 21100 | 21425  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 2502.5 | 2535  | 2567.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 21.07  | 21.12 | 21.07  | 22                     | 0           |
| 5               | QPSK  | 1  | 12 | 21.04  | 20.93 | 21.13  |                        |             |
| 5               | QPSK  | 1  | 24 | 21.00  | 21.00 | 21.06  |                        |             |
| 5               | QPSK  | 12 | 0  | 21.03  | 20.99 | 21.10  | 22                     | 0           |
| 5               | QPSK  | 12 | 7  | 21.04  | 21.01 | 21.01  |                        |             |
| 5               | QPSK  | 12 | 13 | 21.00  | 21.02 | 21.02  |                        |             |
| 5               | QPSK  | 25 | 0  | 21.01  | 21.00 | 21.01  |                        |             |
| 5               | 16QAM | 1  | 0  | 20.64  | 20.68 | 21.10  | 22                     | 0           |
| 5               | 16QAM | 1  | 12 | 20.68  | 20.77 | 20.96  |                        |             |
| 5               | 16QAM | 1  | 24 | 20.84  | 20.70 | 20.99  |                        |             |
| 5               | 16QAM | 12 | 0  | 20.72  | 20.73 | 20.86  | 22                     | 0           |
| 5               | 16QAM | 12 | 7  | 20.67  | 20.64 | 20.86  |                        |             |
| 5               | 16QAM | 12 | 13 | 20.56  | 20.52 | 20.85  |                        |             |
| 5               | 16QAM | 25 | 0  | 20.48  | 20.52 | 20.90  |                        |             |
| 5               | 64QAM | 1  | 0  | 20.52  | 20.57 | 21.08  | 22                     | 0           |
| 5               | 64QAM | 1  | 12 | 20.59  | 20.75 | 21.07  |                        |             |
| 5               | 64QAM | 1  | 24 | 20.72  | 20.73 | 21.05  |                        |             |
| 5               | 64QAM | 12 | 0  | 20.18  | 20.00 | 20.28  | 21                     | 1           |
| 5               | 64QAM | 12 | 7  | 20.27  | 20.10 | 20.15  |                        |             |
| 5               | 64QAM | 12 | 13 | 20.16  | 20.15 | 20.19  |                        |             |
| 5               | 64QAM | 25 | 0  | 20.16  | 20.07 | 20.11  |                        |             |



**<LTE Band 12>**

| 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 23060                    | 23095                       | 23130                     |                        |             |
| Frequency (MHz) |            |         |           | 704                      | 707.5                       | 711                       |                        |             |
| 10              | QPSK       | 1       | 0         | 22.53                    | 22.47                       | 22.55                     |                        |             |
| 10              | QPSK       | 1       | 25        | 22.73                    | 22.58                       | 22.56                     | 24                     | 0           |
| 10              | QPSK       | 1       | 49        | 22.58                    | 22.55                       | 22.62                     | 23                     | 1           |
| 10              | QPSK       | 25      | 0         | 21.62                    | 21.61                       | 21.59                     |                        |             |
| 10              | QPSK       | 25      | 12        | 21.64                    | 21.62                       | 21.60                     |                        |             |
| 10              | QPSK       | 25      | 25        | 21.66                    | 21.62                       | 21.53                     |                        |             |
| 10              | QPSK       | 50      | 0         | 21.65                    | 21.59                       | 21.57                     |                        |             |
| 10              | 16QAM      | 1       | 0         | 21.87                    | 21.86                       | 21.91                     | 23                     | 1           |
| 10              | 16QAM      | 1       | 25        | 22.03                    | 21.96                       | 21.92                     |                        |             |
| 10              | 16QAM      | 1       | 49        | 21.98                    | 21.91                       | 21.95                     |                        |             |
| 10              | 16QAM      | 25      | 0         | 20.75                    | 20.72                       | 20.69                     | 22                     | 2           |
| 10              | 16QAM      | 25      | 12        | 20.77                    | 20.77                       | 20.69                     |                        |             |
| 10              | 16QAM      | 25      | 25        | 20.75                    | 20.72                       | 20.69                     |                        |             |
| 10              | 16QAM      | 50      | 0         | 20.79                    | 20.74                       | 20.66                     |                        |             |
| 10              | 64QAM      | 1       | 0         | 20.72                    | 20.75                       | 20.79                     | 22                     | 2           |
| 10              | 64QAM      | 1       | 25        | 20.90                    | 20.85                       | 20.82                     |                        |             |
| 10              | 64QAM      | 1       | 49        | 20.87                    | 20.82                       | 20.85                     |                        |             |
| 10              | 64QAM      | 25      | 0         | 19.73                    | 19.73                       | 19.71                     | 21                     | 3           |
| 10              | 64QAM      | 25      | 12        | 19.78                    | 19.77                       | 19.71                     |                        |             |
| 10              | 64QAM      | 25      | 25        | 19.76                    | 19.71                       | 19.70                     |                        |             |
| 10              | 64QAM      | 50      | 0         | 19.76                    | 19.71                       | 19.66                     |                        |             |
| Channel         |            |         |           | 23035                    | 23095                       | 23155                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 701.5                    | 707.5                       | 713.5                     |                        |             |
| 5               | QPSK       | 1       | 0         | 22.54                    | 22.56                       | 22.50                     | 24                     | 0           |
| 5               | QPSK       | 1       | 12        | 22.54                    | 22.55                       | 22.60                     |                        |             |
| 5               | QPSK       | 1       | 24        | 22.60                    | 22.57                       | 22.56                     |                        |             |
| 5               | QPSK       | 12      | 0         | 21.55                    | 21.59                       | 21.51                     | 23                     | 1           |
| 5               | QPSK       | 12      | 7         | 21.58                    | 21.61                       | 21.71                     |                        |             |
| 5               | QPSK       | 12      | 13        | 21.66                    | 21.59                       | 21.61                     |                        |             |
| 5               | QPSK       | 25      | 0         | 21.68                    | 21.60                       | 21.55                     |                        |             |
| 5               | 16QAM      | 1       | 0         | 21.84                    | 21.95                       | 21.88                     | 23                     | 1           |
| 5               | 16QAM      | 1       | 12        | 21.93                    | 21.94                       | 21.94                     |                        |             |
| 5               | 16QAM      | 1       | 24        | 21.98                    | 21.93                       | 21.93                     |                        |             |
| 5               | 16QAM      | 12      | 0         | 20.68                    | 20.71                       | 20.68                     | 22                     | 2           |
| 5               | 16QAM      | 12      | 7         | 20.74                    | 20.76                       | 20.81                     |                        |             |
| 5               | 16QAM      | 12      | 13        | 20.78                    | 20.72                       | 20.77                     |                        |             |
| 5               | 16QAM      | 25      | 0         | 20.78                    | 20.71                       | 20.64                     |                        |             |
| 5               | 64QAM      | 1       | 0         | 20.75                    | 20.83                       | 20.83                     | 22                     | 2           |
| 5               | 64QAM      | 1       | 12        | 20.83                    | 20.85                       | 20.88                     |                        |             |
| 5               | 64QAM      | 1       | 24        | 20.85                    | 20.81                       | 20.82                     |                        |             |
| 5               | 64QAM      | 12      | 0         | 19.67                    | 19.69                       | 19.66                     | 21                     | 3           |
| 5               | 64QAM      | 12      | 7         | 19.70                    | 19.72                       | 19.79                     |                        |             |
| 5               | 64QAM      | 12      | 13        | 19.78                    | 19.69                       | 19.78                     |                        |             |
| 5               | 64QAM      | 25      | 0         | 19.78                    | 19.72                       | 19.65                     |                        |             |
| Channel         |            |         |           | 23025                    | 23095                       | 23165                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 700.5                    | 707.5                       | 714.5                     |                        |             |
| 3               | QPSK       | 1       | 0         | 22.53                    | 22.54                       | 22.59                     | 24                     | 0           |
| 3               | QPSK       | 1       | 8         | 22.52                    | 22.54                       | 22.57                     |                        |             |
| 3               | QPSK       | 1       | 14        | 22.53                    | 22.54                       | 22.56                     |                        |             |
| 3               | QPSK       | 8       | 0         | 21.58                    | 21.56                       | 21.59                     | 23                     | 1           |
| 3               | QPSK       | 8       | 4         | 21.58                    | 21.63                       | 21.66                     |                        |             |



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|                 |       |    |    |       |       |       |                        |             |
|-----------------|-------|----|----|-------|-------|-------|------------------------|-------------|
| 3               | QPSK  | 8  | 7  | 21.52 | 21.56 | 21.59 |                        |             |
| 3               | QPSK  | 15 | 0  | 21.55 | 21.60 | 21.63 |                        |             |
| 3               | 16QAM | 1  | 0  | 21.88 | 21.90 | 21.93 |                        |             |
| 3               | 16QAM | 1  | 8  | 21.88 | 21.94 | 21.96 | 23                     | 1           |
| 3               | 16QAM | 1  | 14 | 21.86 | 21.89 | 21.90 |                        |             |
| 3               | 16QAM | 8  | 0  | 20.71 | 20.78 | 20.81 |                        |             |
| 3               | 16QAM | 8  | 4  | 20.74 | 20.76 | 20.79 | 22                     | 2           |
| 3               | 16QAM | 8  | 7  | 20.73 | 20.77 | 20.80 |                        |             |
| 3               | 16QAM | 15 | 0  | 20.65 | 20.70 | 20.77 |                        |             |
| 3               | 64QAM | 1  | 0  | 20.76 | 20.80 | 20.84 | 22                     | 2           |
| 3               | 64QAM | 1  | 8  | 20.76 | 20.81 | 20.82 |                        |             |
| 3               | 64QAM | 1  | 14 | 20.79 | 20.80 | 20.81 |                        |             |
| 3               | 64QAM | 8  | 0  | 19.69 | 19.70 | 19.77 | 21                     | 3           |
| 3               | 64QAM | 8  | 4  | 19.69 | 19.74 | 19.76 |                        |             |
| 3               | 64QAM | 8  | 7  | 19.71 | 19.72 | 19.75 |                        |             |
| 3               | 64QAM | 15 | 0  | 19.65 | 19.69 | 19.76 |                        |             |
| Channel         |       |    |    | 23017 | 23095 | 23173 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 699.7 | 707.5 | 715.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 22.49 | 22.51 | 22.53 | 24                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 22.57 | 22.59 | 22.60 |                        |             |
| 1.4             | QPSK  | 1  | 5  | 22.49 | 22.50 | 22.54 |                        |             |
| 1.4             | QPSK  | 3  | 0  | 22.57 | 22.57 | 22.56 |                        |             |
| 1.4             | QPSK  | 3  | 1  | 22.57 | 22.58 | 22.62 |                        |             |
| 1.4             | QPSK  | 3  | 3  | 22.55 | 22.55 | 22.60 |                        |             |
| 1.4             | QPSK  | 6  | 0  | 21.54 | 21.55 | 21.56 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 0  | 21.82 | 21.89 | 21.86 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 3  | 21.91 | 21.95 | 21.95 |                        |             |
| 1.4             | 16QAM | 1  | 5  | 21.78 | 21.89 | 21.88 |                        |             |
| 1.4             | 16QAM | 3  | 0  | 21.61 | 21.68 | 21.66 |                        |             |
| 1.4             | 16QAM | 3  | 1  | 21.68 | 21.70 | 21.72 |                        |             |
| 1.4             | 16QAM | 3  | 3  | 21.63 | 21.65 | 21.68 |                        |             |
| 1.4             | 16QAM | 6  | 0  | 20.72 | 20.76 | 20.79 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 0  | 20.72 | 20.81 | 20.82 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 3  | 20.75 | 20.85 | 20.86 |                        |             |
| 1.4             | 64QAM | 1  | 5  | 20.73 | 20.80 | 20.77 |                        |             |
| 1.4             | 64QAM | 3  | 0  | 20.63 | 20.73 | 20.70 |                        |             |
| 1.4             | 64QAM | 3  | 1  | 20.69 | 20.73 | 20.79 |                        |             |
| 1.4             | 64QAM | 3  | 3  | 20.68 | 20.71 | 20.75 |                        |             |
| 1.4             | 64QAM | 6  | 0  | 19.64 | 19.70 | 19.71 | 21                     | 3           |



**<LTE Band 17>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 23780                 | 23790                    | 23800                  |                     |          |
| Frequency (MHz) |            |         |           | 709                   | 710                      | 711                    |                     |          |
| 10              | QPSK       | 1       | 0         | 22.54                 | 22.56                    | 22.62                  | 24                  | 0        |
| 10              | QPSK       | 1       | 25        | 22.65                 | 22.61                    | 22.62                  |                     |          |
| 10              | QPSK       | 1       | 49        | 22.72                 | 22.71                    | 22.71                  |                     |          |
| 10              | QPSK       | 25      | 0         | 21.69                 | 21.66                    | 21.65                  | 23                  | 1        |
| 10              | QPSK       | 25      | 12        | 21.72                 | 21.70                    | 21.70                  |                     |          |
| 10              | QPSK       | 25      | 25        | 21.67                 | 21.62                    | 21.62                  |                     |          |
| 10              | QPSK       | 50      | 0         | 21.70                 | 21.69                    | 21.66                  | 23                  | 1        |
| 10              | 16QAM      | 1       | 0         | 21.89                 | 21.93                    | 21.97                  |                     |          |
| 10              | 16QAM      | 1       | 25        | 22.02                 | 22.00                    | 21.96                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 22.13                 | 22.11                    | 22.05                  | 22                  | 2        |
| 10              | 16QAM      | 25      | 0         | 20.81                 | 20.77                    | 20.78                  |                     |          |
| 10              | 16QAM      | 25      | 12        | 20.81                 | 20.82                    | 20.77                  |                     |          |
| 10              | 16QAM      | 25      | 25        | 20.76                 | 20.79                    | 20.77                  | 22                  | 2        |
| 10              | 16QAM      | 50      | 0         | 20.79                 | 20.78                    | 20.76                  |                     |          |
| 10              | 64QAM      | 1       | 0         | 20.82                 | 20.80                    | 20.90                  |                     |          |
| 10              | 64QAM      | 1       | 25        | 20.91                 | 20.89                    | 20.87                  | 22                  | 2        |
| 10              | 64QAM      | 1       | 49        | 21.01                 | 20.98                    | 20.98                  |                     |          |
| 10              | 64QAM      | 25      | 0         | 19.82                 | 19.77                    | 19.80                  |                     |          |
| 10              | 64QAM      | 25      | 12        | 19.84                 | 19.83                    | 19.79                  | 21                  | 3        |
| 10              | 64QAM      | 25      | 25        | 19.78                 | 19.78                    | 19.75                  |                     |          |
| 10              | 64QAM      | 50      | 0         | 19.79                 | 19.78                    | 19.75                  |                     |          |
| Channel         |            |         |           | 23755                 | 23790                    | 23825                  |                     |          |
| Frequency (MHz) |            |         |           | 706.5                 | 710                      | 713.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 22.55                 | 22.53                    | 22.60                  | 24                  | 0        |
| 5               | QPSK       | 1       | 12        | 22.67                 | 22.60                    | 22.61                  |                     |          |
| 5               | QPSK       | 1       | 24        | 22.65                 | 22.69                    | 22.69                  |                     |          |
| 5               | QPSK       | 12      | 0         | 21.72                 | 21.66                    | 21.63                  | 23                  | 1        |
| 5               | QPSK       | 12      | 7         | 21.73                 | 21.68                    | 21.67                  |                     |          |
| 5               | QPSK       | 12      | 13        | 21.69                 | 21.66                    | 21.61                  |                     |          |
| 5               | QPSK       | 25      | 0         | 21.68                 | 21.66                    | 21.66                  | 23                  | 1        |
| 5               | 16QAM      | 1       | 0         | 21.95                 | 21.86                    | 21.98                  |                     |          |
| 5               | 16QAM      | 1       | 12        | 22.07                 | 21.97                    | 22.01                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 21.98                 | 22.06                    | 22.02                  | 22                  | 2        |
| 5               | 16QAM      | 12      | 0         | 20.82                 | 20.79                    | 20.78                  |                     |          |
| 5               | 16QAM      | 12      | 7         | 20.85                 | 20.81                    | 20.81                  |                     |          |
| 5               | 16QAM      | 12      | 13        | 20.85                 | 20.78                    | 20.75                  | 22                  | 2        |
| 5               | 16QAM      | 25      | 0         | 20.80                 | 20.78                    | 20.76                  |                     |          |
| 5               | 64QAM      | 1       | 0         | 20.82                 | 20.78                    | 20.83                  |                     |          |
| 5               | 64QAM      | 1       | 12        | 20.95                 | 20.88                    | 20.87                  | 22                  | 2        |
| 5               | 64QAM      | 1       | 24        | 20.90                 | 20.95                    | 20.91                  |                     |          |
| 5               | 64QAM      | 12      | 0         | 19.82                 | 19.78                    | 19.77                  |                     |          |
| 5               | 64QAM      | 12      | 7         | 19.85                 | 19.82                    | 19.78                  | 21                  | 3        |
| 5               | 64QAM      | 12      | 13        | 19.84                 | 19.78                    | 19.75                  |                     |          |
| 5               | 64QAM      | 25      | 0         | 19.79                 | 19.78                    | 19.75                  |                     |          |



**<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) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 132072                | 132322                   | 132572                 |                     |          |
| Frequency (MHz) |            |         |           | 1720                  | 1745                     | 1770                   |                     |          |
| 20              | QPSK       | 1       | 0         | 18.16                 | 18.18                    | 18.15                  | 18.5                | 0        |
| 20              | QPSK       | 1       | 49        | 18.10                 | 18.12                    | 18.17                  |                     |          |
| 20              | QPSK       | 1       | 99        | 18.14                 | 18.08                    | 18.04                  |                     |          |
| 20              | QPSK       | 50      | 0         | 17.96                 | 18.00                    | 17.92                  | 18.5                | 0        |
| 20              | QPSK       | 50      | 24        | 17.78                 | 17.98                    | 17.90                  |                     |          |
| 20              | QPSK       | 50      | 50        | 17.95                 | 17.92                    | 17.87                  |                     |          |
| 20              | QPSK       | 100     | 0         | 17.94                 | 17.95                    | 17.88                  | 18.5                | 0        |
| 20              | 16QAM      | 1       | 0         | 17.77                 | 17.72                    | 17.77                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 17.71                 | 17.80                    | 17.72                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 17.72                 | 17.70                    | 17.68                  | 18.5                | 0        |
| 20              | 16QAM      | 50      | 0         | 17.77                 | 17.87                    | 17.79                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 17.85                 | 17.89                    | 17.81                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 17.79                 | 17.82                    | 17.75                  | 18.5                | 0        |
| 20              | 16QAM      | 100     | 0         | 17.83                 | 17.86                    | 17.74                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 18.08                 | 18.06                    | 18.06                  | 18.5                | 0        |
| 20              | 64QAM      | 1       | 49        | 18.00                 | 18.05                    | 18.11                  |                     |          |
| 20              | 64QAM      | 1       | 99        | 18.08                 | 18.04                    | 18.08                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 17.86                 | 17.98                    | 17.91                  | 18.5                | 0        |
| 20              | 64QAM      | 50      | 24        | 17.96                 | 17.99                    | 17.94                  |                     |          |
| 20              | 64QAM      | 50      | 50        | 17.93                 | 17.92                    | 17.87                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 17.94                 | 17.94                    | 17.89                  |                     |          |
| Channel         |            |         |           | 132047                | 132322                   | 132597                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1717.5                | 1745                     | 1772.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 18.10                 | 18.12                    | 18.13                  | 18.5                | 0        |
| 15              | QPSK       | 1       | 37        | 18.04                 | 18.09                    | 18.11                  |                     |          |
| 15              | QPSK       | 1       | 74        | 18.11                 | 18.03                    | 17.96                  |                     |          |
| 15              | QPSK       | 36      | 0         | 17.86                 | 17.97                    | 17.89                  | 18.5                | 0        |
| 15              | QPSK       | 36      | 20        | 17.68                 | 17.91                    | 17.90                  |                     |          |
| 15              | QPSK       | 36      | 39        | 17.91                 | 17.92                    | 17.86                  |                     |          |
| 15              | QPSK       | 75      | 0         | 17.93                 | 17.86                    | 17.83                  | 18.5                | 0        |
| 15              | 16QAM      | 1       | 0         | 17.76                 | 17.72                    | 17.72                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 17.61                 | 17.78                    | 17.64                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 17.66                 | 17.62                    | 17.66                  | 18.5                | 0        |
| 15              | 16QAM      | 36      | 0         | 17.69                 | 17.78                    | 17.78                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 17.79                 | 17.87                    | 17.77                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 17.69                 | 17.78                    | 17.69                  | 18.5                | 0        |
| 15              | 16QAM      | 75      | 0         | 17.78                 | 17.83                    | 17.69                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 18.06                 | 18.06                    | 18.05                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 17.93                 | 18.03                    | 18.09                  | 18.5                | 0        |
| 15              | 64QAM      | 1       | 74        | 17.98                 | 17.96                    | 18.07                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 17.84                 | 17.95                    | 17.91                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 17.95                 | 17.97                    | 17.94                  | 18.5                | 0        |
| 15              | 64QAM      | 36      | 39        | 17.91                 | 17.86                    | 17.86                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 17.90                 | 17.87                    | 17.84                  |                     |          |
| Channel         |            |         |           | 132022                | 132322                   | 132622                 | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1715                  | 1745                     | 1775                   |                     |          |
| 10              | QPSK       | 1       | 0         | 18.09                 | 18.15                    | 18.09                  | 18.5                | 0        |
| 10              | QPSK       | 1       | 25        | 18.02                 | 18.09                    | 18.10                  |                     |          |
| 10              | QPSK       | 1       | 49        | 18.08                 | 18.06                    | 18.04                  |                     |          |
| 10              | QPSK       | 25      | 0         | 17.94                 | 17.96                    | 17.85                  | 18.5                | 0        |
| 10              | QPSK       | 25      | 12        | 17.71                 | 17.94                    | 17.89                  |                     |          |



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|                 |       |    |    |        |        |        |                        |             |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| 10              | QPSK  | 25 | 25 | 17.90  | 17.89  | 17.85  |                        |             |
| 10              | QPSK  | 50 | 0  | 17.85  | 17.93  | 17.80  |                        |             |
| 10              | 16QAM | 1  | 0  | 17.73  | 17.67  | 17.73  |                        |             |
| 10              | 16QAM | 1  | 25 | 17.61  | 17.75  | 17.64  | 18.5                   | 0           |
| 10              | 16QAM | 1  | 49 | 17.69  | 17.60  | 17.68  |                        |             |
| 10              | 16QAM | 25 | 0  | 17.67  | 17.83  | 17.70  |                        |             |
| 10              | 16QAM | 25 | 12 | 17.75  | 17.87  | 17.74  | 18.5                   | 0           |
| 10              | 16QAM | 25 | 25 | 17.79  | 17.82  | 17.71  |                        |             |
| 10              | 16QAM | 50 | 0  | 17.77  | 17.82  | 17.72  |                        |             |
| 10              | 64QAM | 1  | 0  | 17.99  | 17.98  | 18.05  | 18.5                   | 0           |
| 10              | 64QAM | 1  | 25 | 17.93  | 17.96  | 18.05  |                        |             |
| 10              | 64QAM | 1  | 49 | 17.99  | 17.96  | 17.98  |                        |             |
| 10              | 64QAM | 25 | 0  | 17.82  | 17.94  | 17.89  | 18.5                   | 0           |
| 10              | 64QAM | 25 | 12 | 17.90  | 17.99  | 17.93  |                        |             |
| 10              | 64QAM | 25 | 25 | 17.86  | 17.85  | 17.81  |                        |             |
| 10              | 64QAM | 50 | 0  | 17.86  | 17.92  | 17.80  |                        |             |
| Channel         |       |    |    | 131997 | 132322 | 132647 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1712.5 | 1745   | 1777.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 18.14  | 18.11  | 18.10  | 18.5                   | 0           |
| 5               | QPSK  | 1  | 12 | 18.08  | 18.10  | 18.12  |                        |             |
| 5               | QPSK  | 1  | 24 | 18.10  | 18.03  | 17.97  |                        |             |
| 5               | QPSK  | 12 | 0  | 17.89  | 17.92  | 17.82  | 18.5                   | 0           |
| 5               | QPSK  | 12 | 7  | 17.75  | 17.95  | 17.89  |                        |             |
| 5               | QPSK  | 12 | 13 | 17.85  | 17.85  | 17.85  |                        |             |
| 5               | QPSK  | 25 | 0  | 17.85  | 17.89  | 17.80  | 18.5                   | 0           |
| 5               | 16QAM | 1  | 0  | 17.69  | 17.70  | 17.72  |                        |             |
| 5               | 16QAM | 1  | 12 | 17.69  | 17.76  | 17.65  |                        |             |
| 5               | 16QAM | 1  | 24 | 17.72  | 17.67  | 17.58  | 18.5                   | 0           |
| 5               | 16QAM | 12 | 0  | 17.77  | 17.77  | 17.77  |                        |             |
| 5               | 16QAM | 12 | 7  | 17.81  | 17.83  | 17.79  |                        |             |
| 5               | 16QAM | 12 | 13 | 17.76  | 17.77  | 17.65  | 18.5                   | 0           |
| 5               | 16QAM | 25 | 0  | 17.73  | 17.86  | 17.72  |                        |             |
| 5               | 64QAM | 1  | 0  | 18.08  | 18.04  | 18.02  |                        |             |
| 5               | 64QAM | 1  | 12 | 17.96  | 18.00  | 18.10  | 18.5                   | 0           |
| 5               | 64QAM | 1  | 24 | 17.98  | 17.97  | 18.07  |                        |             |
| 5               | 64QAM | 12 | 0  | 17.82  | 17.93  | 17.87  |                        |             |
| 5               | 64QAM | 12 | 7  | 17.96  | 17.93  | 17.93  | 18.5                   | 0           |
| 5               | 64QAM | 12 | 13 | 17.93  | 17.92  | 17.80  |                        |             |
| 5               | 64QAM | 25 | 0  | 17.90  | 17.90  | 17.81  |                        |             |
| Channel         |       |    |    | 131987 | 132322 | 132657 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1711.5 | 1745   | 1778.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 18.06  | 18.12  | 18.11  | 18.5                   | 0           |
| 3               | QPSK  | 1  | 8  | 18.07  | 18.06  | 18.13  |                        |             |
| 3               | QPSK  | 1  | 14 | 18.12  | 18.01  | 18.02  |                        |             |
| 3               | QPSK  | 8  | 0  | 17.92  | 17.99  | 17.92  | 18.5                   | 0           |
| 3               | QPSK  | 8  | 4  | 17.73  | 17.96  | 17.87  |                        |             |
| 3               | QPSK  | 8  | 7  | 17.90  | 17.92  | 17.85  |                        |             |
| 3               | QPSK  | 15 | 0  | 17.91  | 17.95  | 17.87  | 18.5                   | 0           |
| 3               | 16QAM | 1  | 0  | 17.69  | 17.68  | 17.76  |                        |             |
| 3               | 16QAM | 1  | 8  | 17.65  | 17.72  | 17.68  |                        |             |
| 3               | 16QAM | 1  | 14 | 17.64  | 17.67  | 17.68  | 18.5                   | 0           |
| 3               | 16QAM | 8  | 0  | 17.76  | 17.81  | 17.71  |                        |             |
| 3               | 16QAM | 8  | 4  | 17.75  | 17.89  | 17.73  |                        |             |
| 3               | 16QAM | 8  | 7  | 17.74  | 17.77  | 17.66  | 18.5                   | 0           |
| 3               | 16QAM | 15 | 0  | 17.78  | 17.77  | 17.72  |                        |             |
| 3               | 64QAM | 1  | 0  | 17.99  | 18.05  | 17.98  | 18.5                   | 0           |



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|                 |       |    |    |        |        |        |                        |             |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| 3               | 64QAM | 1  | 8  | 17.90  | 17.99  | 18.10  | 18.5                   | 0           |
| 3               | 64QAM | 1  | 14 | 18.03  | 18.02  | 18.07  |                        |             |
| 3               | 64QAM | 8  | 0  | 17.78  | 17.89  | 17.81  |                        |             |
| 3               | 64QAM | 8  | 4  | 17.93  | 17.89  | 17.84  |                        |             |
| 3               | 64QAM | 8  | 7  | 17.88  | 17.90  | 17.82  |                        |             |
| 3               | 64QAM | 15 | 0  | 17.89  | 17.90  | 17.85  |                        |             |
| Channel         |       |    |    | 131979 | 132322 | 132665 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1710.7 | 1745   | 1779.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 18.14  | 18.15  | 18.05  | 18.5                   | 0           |
| 1.4             | QPSK  | 1  | 3  | 18.07  | 18.08  | 18.16  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 18.14  | 18.01  | 17.94  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 17.87  | 17.92  | 17.90  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 17.68  | 17.98  | 17.83  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 17.93  | 17.84  | 17.82  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 17.87  | 17.91  | 17.81  | 18.5                   | 0           |
| 1.4             | 16QAM | 1  | 0  | 17.70  | 17.69  | 17.69  | 18.5                   | 0           |
| 1.4             | 16QAM | 1  | 3  | 17.65  | 17.75  | 17.68  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 17.72  | 17.68  | 17.62  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 17.71  | 17.87  | 17.73  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 17.79  | 17.88  | 17.71  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 17.76  | 17.74  | 17.70  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 17.79  | 17.79  | 17.69  | 18.5                   | 0           |
| 1.4             | 64QAM | 1  | 0  | 18.01  | 18.02  | 18.02  | 18.5                   | 0           |
| 1.4             | 64QAM | 1  | 3  | 17.95  | 17.98  | 18.01  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 18.01  | 17.96  | 18.06  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 17.80  | 17.88  | 17.84  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 17.86  | 17.89  | 17.84  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 17.84  | 17.85  | 17.79  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 17.85  | 17.84  | 17.82  | 18.5                   | 0           |

**<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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 18700                    | 18900                       | 19100                     |                        |             |
| Frequency (MHz) |            |         |           | 1860                     | 1880                        | 1900                      |                        |             |
| 20              | QPSK       | 1       | 0         | 21.99                    | 21.90                       | 21.92                     | 22                     | 0           |
| 20              | QPSK       | 1       | 49        | 21.45                    | 21.41                       | 21.52                     |                        |             |
| 20              | QPSK       | 1       | 99        | 21.22                    | 21.35                       | 21.54                     |                        |             |
| 20              | QPSK       | 50      | 0         | 21.84                    | 21.69                       | 21.73                     | 22                     | 0           |
| 20              | QPSK       | 50      | 24        | 21.50                    | 21.33                       | 21.52                     |                        |             |
| 20              | QPSK       | 50      | 50        | 21.32                    | 21.28                       | 21.49                     |                        |             |
| 20              | QPSK       | 100     | 0         | 21.71                    | 21.70                       | 21.69                     | 22                     | 0           |
| 20              | 16QAM      | 1       | 0         | 21.90                    | 21.75                       | 21.92                     |                        |             |
| 20              | 16QAM      | 1       | 49        | 21.52                    | 21.70                       | 21.92                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 21.62                    | 21.32                       | 21.43                     | 21                     | 1           |
| 20              | 16QAM      | 50      | 0         | 20.68                    | 20.52                       | 20.62                     |                        |             |
| 20              | 16QAM      | 50      | 24        | 20.64                    | 20.47                       | 20.63                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 20.48                    | 20.41                       | 20.58                     | 21                     | 1           |
| 20              | 16QAM      | 100     | 0         | 20.54                    | 20.48                       | 20.62                     |                        |             |
| 20              | 64QAM      | 1       | 0         | 20.87                    | 20.67                       | 20.82                     |                        |             |
| 20              | 64QAM      | 1       | 49        | 20.87                    | 20.58                       | 20.84                     | 20                     | 2           |
| 20              | 64QAM      | 1       | 99        | 20.50                    | 20.62                       | 20.75                     |                        |             |
| 20              | 64QAM      | 50      | 0         | 19.70                    | 19.53                       | 19.66                     |                        |             |
| 20              | 64QAM      | 50      | 24        | 19.69                    | 19.53                       | 19.66                     | 20                     | 2           |
| 20              | 64QAM      | 50      | 50        | 19.48                    | 19.43                       | 19.61                     |                        |             |
| 20              | 64QAM      | 100     | 0         | 19.59                    | 19.46                       | 19.63                     |                        |             |
| Channel         |            |         |           | 18675                    | 18900                       | 19125                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1857.5                   | 1880                        | 1902.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 21.91                    | 21.87                       | 21.84                     | 22                     | 0           |
| 15              | QPSK       | 1       | 37        | 21.44                    | 21.32                       | 21.51                     |                        |             |
| 15              | QPSK       | 1       | 74        | 21.20                    | 21.35                       | 21.53                     |                        |             |
| 15              | QPSK       | 36      | 0         | 21.84                    | 21.61                       | 21.72                     | 22                     | 0           |
| 15              | QPSK       | 36      | 20        | 21.45                    | 21.27                       | 21.48                     |                        |             |
| 15              | QPSK       | 36      | 39        | 21.32                    | 21.28                       | 21.42                     |                        |             |
| 15              | QPSK       | 75      | 0         | 21.63                    | 21.63                       | 21.67                     | 22                     | 0           |
| 15              | 16QAM      | 1       | 0         | 21.82                    | 21.68                       | 21.87                     |                        |             |
| 15              | 16QAM      | 1       | 37        | 21.50                    | 21.70                       | 21.84                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 21.57                    | 21.24                       | 21.37                     | 21                     | 1           |
| 15              | 16QAM      | 36      | 0         | 20.61                    | 20.45                       | 20.53                     |                        |             |
| 15              | 16QAM      | 36      | 20        | 20.60                    | 20.46                       | 20.54                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 20.38                    | 20.39                       | 20.50                     | 21                     | 1           |
| 15              | 16QAM      | 75      | 0         | 20.52                    | 20.48                       | 20.60                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 20.84                    | 20.58                       | 20.72                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 20.78                    | 20.50                       | 20.76                     | 20                     | 2           |
| 15              | 64QAM      | 1       | 74        | 20.44                    | 20.61                       | 20.70                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 19.66                    | 19.49                       | 19.64                     |                        |             |
| 15              | 64QAM      | 36      | 20        | 19.61                    | 19.43                       | 19.57                     | 20                     | 2           |
| 15              | 64QAM      | 36      | 39        | 19.42                    | 19.43                       | 19.59                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 19.55                    | 19.44                       | 19.57                     |                        |             |
| Channel         |            |         |           | 18650                    | 18900                       | 19150                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1855                     | 1880                        | 1905                      |                        |             |
| 10              | QPSK       | 1       | 0         | 21.94                    | 21.86                       | 21.90                     | 22                     | 0           |
| 10              | QPSK       | 1       | 25        | 21.40                    | 21.32                       | 21.49                     |                        |             |
| 10              | QPSK       | 1       | 49        | 21.12                    | 21.25                       | 21.53                     |                        |             |



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|                 |       |    |    |        |       |        |                        |             |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| 10              | QPSK  | 25 | 0  | 21.84  | 21.62 | 21.70  | 22                     | 0           |
| 10              | QPSK  | 25 | 12 | 21.48  | 21.31 | 21.42  |                        |             |
| 10              | QPSK  | 25 | 25 | 21.30  | 21.23 | 21.44  |                        |             |
| 10              | QPSK  | 50 | 0  | 21.65  | 21.63 | 21.64  |                        |             |
| 10              | 16QAM | 1  | 0  | 21.82  | 21.72 | 21.92  | 22                     | 0           |
| 10              | 16QAM | 1  | 25 | 21.42  | 21.64 | 21.91  |                        |             |
| 10              | 16QAM | 1  | 49 | 21.52  | 21.23 | 21.33  |                        |             |
| 10              | 16QAM | 25 | 0  | 20.68  | 20.47 | 20.60  | 21                     | 1           |
| 10              | 16QAM | 25 | 12 | 20.63  | 20.37 | 20.62  |                        |             |
| 10              | 16QAM | 25 | 25 | 20.41  | 20.38 | 20.57  |                        |             |
| 10              | 16QAM | 50 | 0  | 20.46  | 20.47 | 20.54  |                        |             |
| 10              | 64QAM | 1  | 0  | 20.84  | 20.59 | 20.76  | 21                     | 1           |
| 10              | 64QAM | 1  | 25 | 20.80  | 20.50 | 20.76  |                        |             |
| 10              | 64QAM | 1  | 49 | 20.41  | 20.57 | 20.68  |                        |             |
| 10              | 64QAM | 25 | 0  | 19.70  | 19.43 | 19.60  | 20                     | 2           |
| 10              | 64QAM | 25 | 12 | 19.65  | 19.48 | 19.60  |                        |             |
| 10              | 64QAM | 25 | 25 | 19.44  | 19.37 | 19.57  |                        |             |
| 10              | 64QAM | 50 | 0  | 19.54  | 19.41 | 19.62  |                        |             |
| Channel         |       |    |    | 18625  | 18900 | 19175  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1852.5 | 1880  | 1907.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 21.91  | 21.82 | 21.91  | 22                     | 0           |
| 5               | QPSK  | 1  | 12 | 21.43  | 21.36 | 21.49  |                        |             |
| 5               | QPSK  | 1  | 24 | 21.14  | 21.27 | 21.44  |                        |             |
| 5               | QPSK  | 12 | 0  | 21.75  | 21.66 | 21.67  | 22                     | 0           |
| 5               | QPSK  | 12 | 7  | 21.49  | 21.27 | 21.49  |                        |             |
| 5               | QPSK  | 12 | 13 | 21.28  | 21.24 | 21.42  |                        |             |
| 5               | QPSK  | 25 | 0  | 21.64  | 21.60 | 21.59  |                        |             |
| 5               | 16QAM | 1  | 0  | 21.87  | 21.65 | 21.85  | 22                     | 0           |
| 5               | 16QAM | 1  | 12 | 21.48  | 21.67 | 21.83  |                        |             |
| 5               | 16QAM | 1  | 24 | 21.54  | 21.27 | 21.39  |                        |             |
| 5               | 16QAM | 12 | 0  | 20.62  | 20.46 | 20.61  | 21                     | 1           |
| 5               | 16QAM | 12 | 7  | 20.54  | 20.40 | 20.59  |                        |             |
| 5               | 16QAM | 12 | 13 | 20.46  | 20.31 | 20.55  |                        |             |
| 5               | 16QAM | 25 | 0  | 20.48  | 20.42 | 20.60  |                        |             |
| 5               | 64QAM | 1  | 0  | 20.86  | 20.66 | 20.78  | 21                     | 1           |
| 5               | 64QAM | 1  | 12 | 20.81  | 20.57 | 20.81  |                        |             |
| 5               | 64QAM | 1  | 24 | 20.41  | 20.57 | 20.74  |                        |             |
| 5               | 64QAM | 12 | 0  | 19.61  | 19.44 | 19.62  | 20                     | 2           |
| 5               | 64QAM | 12 | 7  | 19.66  | 19.48 | 19.63  |                        |             |
| 5               | 64QAM | 12 | 13 | 19.48  | 19.43 | 19.51  |                        |             |
| 5               | 64QAM | 25 | 0  | 19.54  | 19.38 | 19.56  |                        |             |
| Channel         |       |    |    | 18615  | 18900 | 19185  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1851.5 | 1880  | 1908.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 21.92  | 21.81 | 21.82  | 22                     | 0           |
| 3               | QPSK  | 1  | 8  | 21.37  | 21.41 | 21.43  |                        |             |
| 3               | QPSK  | 1  | 14 | 21.15  | 21.34 | 21.53  |                        |             |
| 3               | QPSK  | 8  | 0  | 21.82  | 21.68 | 21.70  | 22                     | 0           |
| 3               | QPSK  | 8  | 4  | 21.42  | 21.27 | 21.48  |                        |             |
| 3               | QPSK  | 8  | 7  | 21.23  | 21.26 | 21.45  |                        |             |
| 3               | QPSK  | 15 | 0  | 21.66  | 21.64 | 21.62  |                        |             |
| 3               | 16QAM | 1  | 0  | 21.84  | 21.74 | 21.87  | 22                     | 0           |
| 3               | 16QAM | 1  | 8  | 21.48  | 21.67 | 21.84  |                        |             |
| 3               | 16QAM | 1  | 14 | 21.56  | 21.32 | 21.36  |                        |             |
| 3               | 16QAM | 8  | 0  | 20.58  | 20.46 | 20.61  | 21                     | 1           |
| 3               | 16QAM | 8  | 4  | 20.61  | 20.41 | 20.60  |                        |             |
| 3               | 16QAM | 8  | 7  | 20.46  | 20.34 | 20.49  |                        |             |



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|                 |       |    |    |        |       |        |                        |             |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| 3               | 16QAM | 15 | 0  | 20.50  | 20.46 | 20.62  |                        |             |
| 3               | 64QAM | 1  | 0  | 20.79  | 20.58 | 20.73  | 21                     | 1           |
| 3               | 64QAM | 1  | 8  | 20.77  | 20.52 | 20.80  |                        |             |
| 3               | 64QAM | 1  | 14 | 20.44  | 20.62 | 20.71  |                        |             |
| 3               | 64QAM | 8  | 0  | 19.68  | 19.44 | 19.60  | 20                     | 2           |
| 3               | 64QAM | 8  | 4  | 19.64  | 19.51 | 19.65  |                        |             |
| 3               | 64QAM | 8  | 7  | 19.39  | 19.33 | 19.59  |                        |             |
| 3               | 64QAM | 15 | 0  | 19.59  | 19.36 | 19.63  |                        |             |
| Channel         |       |    |    | 18607  | 18900 | 19193  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1850.7 | 1880  | 1909.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 21.95  | 21.85 | 21.85  | 22                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 21.43  | 21.32 | 21.48  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 21.19  | 21.30 | 21.44  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 21.75  | 21.61 | 21.63  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 21.46  | 21.25 | 21.48  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 21.26  | 21.27 | 21.47  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 21.64  | 21.66 | 21.66  | 22                     | 0           |
| 1.4             | 16QAM | 1  | 0  | 21.88  | 21.66 | 21.91  | 22                     | 0           |
| 1.4             | 16QAM | 1  | 3  | 21.44  | 21.62 | 21.82  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 21.54  | 21.25 | 21.35  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 21.56  | 21.56 | 21.59  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 21.80  | 21.68 | 21.79  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 21.42  | 21.58 | 21.75  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 20.48  | 20.47 | 20.60  | 21                     | 1           |
| 1.4             | 64QAM | 1  | 0  | 20.82  | 20.62 | 20.72  | 21                     | 1           |
| 1.4             | 64QAM | 1  | 3  | 20.83  | 20.56 | 20.83  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 20.48  | 20.61 | 20.71  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 20.38  | 20.26 | 20.45  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 20.48  | 20.39 | 20.57  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 20.70  | 20.49 | 20.71  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 19.58  | 19.37 | 19.55  | 20                     | 2           |



**<LTE Band 4>**

| 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 20050                    | 20175                       | 20300                     |                        |             |
| Frequency (MHz) |            |         |           | 1720                     | 1732.5                      | 1745                      |                        |             |
| 20              | QPSK       | 1       | 0         | 21.57                    | 21.65                       | 21.62                     |                        |             |
| 20              | QPSK       | 1       | 49        | 21.57                    | 21.60                       | 21.55                     | 22.5                   | 0           |
| 20              | QPSK       | 1       | 99        | 21.42                    | 21.53                       | 21.52                     |                        |             |
| 20              | QPSK       | 50      | 0         | 20.76                    | 20.89                       | 20.88                     |                        |             |
| 20              | QPSK       | 50      | 24        | 20.73                    | 20.81                       | 20.85                     | 21.5                   | 1           |
| 20              | QPSK       | 50      | 50        | 20.69                    | 20.82                       | 20.82                     |                        |             |
| 20              | QPSK       | 100     | 0         | 20.72                    | 20.84                       | 20.83                     |                        |             |
| 20              | 16QAM      | 1       | 0         | 21.14                    | 21.18                       | 21.14                     | 21.5                   | 1           |
| 20              | 16QAM      | 1       | 49        | 21.13                    | 21.13                       | 21.22                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 21.03                    | 21.17                       | 21.11                     |                        |             |
| 20              | 16QAM      | 50      | 0         | 20.47                    | 20.46                       | 20.42                     | 20.5                   | 2           |
| 20              | 16QAM      | 50      | 24        | 20.43                    | 20.44                       | 20.44                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 20.39                    | 20.41                       | 20.48                     |                        |             |
| 20              | 16QAM      | 100     | 0         | 20.41                    | 20.44                       | 20.41                     | 20.5                   | 2           |
| 20              | 64QAM      | 1       | 0         | 20.23                    | 20.25                       | 20.24                     |                        |             |
| 20              | 64QAM      | 1       | 49        | 20.21                    | 20.25                       | 20.32                     |                        |             |
| 20              | 64QAM      | 1       | 99        | 20.15                    | 20.30                       | 20.23                     | 19.5                   | 3           |
| 20              | 64QAM      | 50      | 0         | 19.07                    | 19.13                       | 19.18                     |                        |             |
| 20              | 64QAM      | 50      | 24        | 19.08                    | 19.22                       | 19.17                     |                        |             |
| 20              | 64QAM      | 50      | 50        | 19.01                    | 19.15                       | 19.12                     | 19.5                   | 3           |
| 20              | 64QAM      | 100     | 0         | 19.02                    | 19.18                       | 19.16                     |                        |             |
| Channel         |            |         |           | 20025                    | 20175                       | 20325                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1717.5                   | 1732.5                      | 1747.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 21.52                    | 21.62                       | 21.59                     |                        |             |
| 15              | QPSK       | 1       | 37        | 21.48                    | 21.54                       | 21.51                     | 22.5                   | 0           |
| 15              | QPSK       | 1       | 74        | 21.32                    | 21.44                       | 21.42                     |                        |             |
| 15              | QPSK       | 36      | 0         | 20.72                    | 20.88                       | 20.79                     | 21.5                   | 1           |
| 15              | QPSK       | 36      | 20        | 20.68                    | 20.79                       | 20.79                     |                        |             |
| 15              | QPSK       | 36      | 39        | 20.60                    | 20.78                       | 20.82                     |                        |             |
| 15              | QPSK       | 75      | 0         | 20.62                    | 20.76                       | 20.81                     | 21.5                   | 1           |
| 15              | 16QAM      | 1       | 0         | 21.14                    | 21.18                       | 21.14                     |                        |             |
| 15              | 16QAM      | 1       | 37        | 21.08                    | 21.12                       | 21.15                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 20.99                    | 21.13                       | 21.06                     | 20.5                   | 2           |
| 15              | 16QAM      | 36      | 0         | 20.43                    | 20.38                       | 20.33                     |                        |             |
| 15              | 16QAM      | 36      | 20        | 20.43                    | 20.44                       | 20.43                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 20.38                    | 20.37                       | 20.47                     | 20.5                   | 2           |
| 15              | 16QAM      | 75      | 0         | 20.31                    | 20.43                       | 20.37                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 20.19                    | 20.25                       | 20.20                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 20.21                    | 20.15                       | 20.24                     | 20.5                   | 2           |
| 15              | 64QAM      | 1       | 74        | 20.05                    | 20.21                       | 20.16                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 19.00                    | 19.07                       | 19.09                     |                        |             |
| 15              | 64QAM      | 36      | 20        | 19.08                    | 19.18                       | 19.08                     | 19.5                   | 3           |
| 15              | 64QAM      | 36      | 39        | 18.97                    | 19.12                       | 19.06                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 19.00                    | 19.14                       | 19.12                     |                        |             |
| Channel         |            |         |           | 20000                    | 20175                       | 20350                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1715                     | 1732.5                      | 1750                      |                        |             |
| 10              | QPSK       | 1       | 0         | 21.52                    | 21.64                       | 21.53                     |                        |             |
| 10              | QPSK       | 1       | 25        | 21.52                    | 21.52                       | 21.51                     | 22.5                   | 0           |
| 10              | QPSK       | 1       | 49        | 21.37                    | 21.50                       | 21.51                     |                        |             |
| 10              | QPSK       | 25      | 0         | 20.73                    | 20.80                       | 20.83                     | 21.5                   | 1           |
| 10              | QPSK       | 25      | 12        | 20.65                    | 20.78                       | 20.77                     |                        |             |



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|                 |       |    |    |        |        |        |                        |             |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| 10              | QPSK  | 25 | 25 | 20.59  | 20.76  | 20.80  |                        |             |
| 10              | QPSK  | 50 | 0  | 20.64  | 20.74  | 20.73  |                        |             |
| 10              | 16QAM | 1  | 0  | 21.09  | 21.09  | 21.13  |                        |             |
| 10              | 16QAM | 1  | 25 | 21.06  | 21.05  | 21.16  | 21.5                   | 1           |
| 10              | 16QAM | 1  | 49 | 20.99  | 21.17  | 21.11  |                        |             |
| 10              | 16QAM | 25 | 0  | 20.44  | 20.46  | 20.32  |                        |             |
| 10              | 16QAM | 25 | 12 | 20.34  | 20.42  | 20.38  | 20.5                   | 2           |
| 10              | 16QAM | 25 | 25 | 20.38  | 20.34  | 20.41  |                        |             |
| 10              | 16QAM | 50 | 0  | 20.41  | 20.43  | 20.37  |                        |             |
| 10              | 64QAM | 1  | 0  | 20.13  | 20.23  | 20.21  | 20.5                   | 2           |
| 10              | 64QAM | 1  | 25 | 20.14  | 20.18  | 20.30  |                        |             |
| 10              | 64QAM | 1  | 49 | 20.08  | 20.22  | 20.15  |                        |             |
| 10              | 64QAM | 25 | 0  | 18.97  | 19.12  | 19.08  | 19.5                   | 3           |
| 10              | 64QAM | 25 | 12 | 19.01  | 19.18  | 19.07  |                        |             |
| 10              | 64QAM | 25 | 25 | 18.96  | 19.08  | 19.05  |                        |             |
| 10              | 64QAM | 50 | 0  | 18.98  | 19.08  | 19.06  |                        |             |
| Channel         |       |    |    | 19975  | 20175  | 20375  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1712.5 | 1732.5 | 1752.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 21.57  | 21.55  | 21.54  | 22.5                   | 0           |
| 5               | QPSK  | 1  | 12 | 21.51  | 21.57  | 21.50  |                        |             |
| 5               | QPSK  | 1  | 24 | 21.36  | 21.47  | 21.42  |                        |             |
| 5               | QPSK  | 12 | 0  | 20.68  | 20.89  | 20.87  | 21.5                   | 1           |
| 5               | QPSK  | 12 | 7  | 20.71  | 20.75  | 20.77  |                        |             |
| 5               | QPSK  | 12 | 13 | 20.65  | 20.79  | 20.76  |                        |             |
| 5               | QPSK  | 25 | 0  | 20.63  | 20.74  | 20.74  |                        |             |
| 5               | 16QAM | 1  | 0  | 21.09  | 21.08  | 21.08  | 21.5                   | 1           |
| 5               | 16QAM | 1  | 12 | 21.11  | 21.07  | 21.13  |                        |             |
| 5               | 16QAM | 1  | 24 | 20.99  | 21.17  | 21.01  |                        |             |
| 5               | 16QAM | 12 | 0  | 20.43  | 20.39  | 20.36  | 20.5                   | 2           |
| 5               | 16QAM | 12 | 7  | 20.36  | 20.40  | 20.35  |                        |             |
| 5               | 16QAM | 12 | 13 | 20.32  | 20.41  | 20.46  |                        |             |
| 5               | 16QAM | 25 | 0  | 20.32  | 20.42  | 20.31  |                        |             |
| 5               | 64QAM | 1  | 0  | 20.18  | 20.22  | 20.20  | 20.5                   | 2           |
| 5               | 64QAM | 1  | 12 | 20.20  | 20.24  | 20.22  |                        |             |
| 5               | 64QAM | 1  | 24 | 20.05  | 20.22  | 20.19  |                        |             |
| 5               | 64QAM | 12 | 0  | 18.99  | 19.08  | 19.09  | 19.5                   | 3           |
| 5               | 64QAM | 12 | 7  | 19.02  | 19.20  | 19.07  |                        |             |
| 5               | 64QAM | 12 | 13 | 18.91  | 19.15  | 19.07  |                        |             |
| 5               | 64QAM | 25 | 0  | 18.98  | 19.10  | 19.10  |                        |             |
| Channel         |       |    |    | 19965  | 20175  | 20385  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1711.5 | 1732.5 | 1753.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 21.56  | 21.62  | 21.60  | 22.5                   | 0           |
| 3               | QPSK  | 1  | 8  | 21.56  | 21.52  | 21.52  |                        |             |
| 3               | QPSK  | 1  | 14 | 21.42  | 21.44  | 21.42  |                        |             |
| 3               | QPSK  | 8  | 0  | 20.66  | 20.88  | 20.88  | 21.5                   | 1           |
| 3               | QPSK  | 8  | 4  | 20.66  | 20.78  | 20.75  |                        |             |
| 3               | QPSK  | 8  | 7  | 20.68  | 20.74  | 20.76  |                        |             |
| 3               | QPSK  | 15 | 0  | 20.66  | 20.77  | 20.78  |                        |             |
| 3               | 16QAM | 1  | 0  | 21.13  | 21.13  | 21.05  | 21.5                   | 1           |
| 3               | 16QAM | 1  | 8  | 21.08  | 21.13  | 21.12  |                        |             |
| 3               | 16QAM | 1  | 14 | 21.03  | 21.15  | 21.04  |                        |             |
| 3               | 16QAM | 8  | 0  | 20.39  | 20.43  | 20.40  | 20.5                   | 2           |
| 3               | 16QAM | 8  | 4  | 20.43  | 20.38  | 20.35  |                        |             |
| 3               | 16QAM | 8  | 7  | 20.32  | 20.35  | 20.47  |                        |             |
| 3               | 16QAM | 15 | 0  | 20.40  | 20.37  | 20.38  |                        |             |
| 3               | 64QAM | 1  | 0  | 20.20  | 20.18  | 20.15  | 20.5                   | 2           |



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|                 |       |    |    |        |        |        |                        |             |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| 3               | 64QAM | 1  | 8  | 20.13  | 20.15  | 20.22  | 19.5                   | 3           |
| 3               | 64QAM | 1  | 14 | 20.14  | 20.21  | 20.16  |                        |             |
| 3               | 64QAM | 8  | 0  | 19.05  | 19.04  | 19.08  |                        |             |
| 3               | 64QAM | 8  | 4  | 18.98  | 19.17  | 19.09  |                        |             |
| 3               | 64QAM | 8  | 7  | 18.95  | 19.15  | 19.12  |                        |             |
| 3               | 64QAM | 15 | 0  | 18.98  | 19.18  | 19.16  |                        |             |
| Channel         |       |    |    | 19957  | 20175  | 20393  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1710.7 | 1732.5 | 1754.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 21.51  | 21.57  | 21.59  | 22.5                   | 0           |
| 1.4             | QPSK  | 1  | 3  | 21.52  | 21.48  | 21.44  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 21.38  | 21.40  | 21.34  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 21.43  | 21.43  | 21.48  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 21.44  | 21.48  | 21.45  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 21.42  | 21.40  | 21.31  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 21.19  | 21.12  | 21.14  | 21.5                   | 1           |
| 1.4             | 16QAM | 1  | 0  | 21.04  | 21.10  | 21.05  | 21.5                   | 1           |
| 1.4             | 16QAM | 1  | 3  | 21.00  | 21.04  | 21.07  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 20.95  | 21.06  | 20.97  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 21.03  | 21.11  | 21.03  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 21.04  | 21.03  | 21.02  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 20.96  | 21.09  | 20.99  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 20.30  | 20.27  | 20.33  | 20.5                   | 2           |
| 1.4             | 64QAM | 1  | 0  | 20.19  | 20.12  | 20.07  | 20.5                   | 2           |
| 1.4             | 64QAM | 1  | 3  | 20.11  | 20.05  | 20.15  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 20.04  | 20.20  | 20.16  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 20.40  | 20.37  | 20.29  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 20.12  | 20.10  | 20.05  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 20.03  | 20.12  | 20.15  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 18.89  | 19.11  | 19.11  | 19.5                   | 3           |



**<LTE Band 5>**

| 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 20450                    | 20525                       | 20600                     |                        |             |
| Frequency (MHz) |            |         |           | 829                      | 836.5                       | 844                       |                        |             |
| 10              | QPSK       | 1       | 0         | 22.65                    | 22.59                       | 22.81                     |                        |             |
| 10              | QPSK       | 1       | 25        | 22.64                    | 22.87                       | 22.78                     | 24                     | 0           |
| 10              | QPSK       | 1       | 49        | 22.54                    | 22.54                       | 22.79                     |                        |             |
| 10              | QPSK       | 25      | 0         | 21.67                    | 21.67                       | 21.85                     |                        |             |
| 10              | QPSK       | 25      | 12        | 21.71                    | 21.73                       | 21.85                     | 23                     | 1           |
| 10              | QPSK       | 25      | 25        | 21.60                    | 21.61                       | 21.77                     |                        |             |
| 10              | QPSK       | 50      | 0         | 21.64                    | 21.68                       | 21.83                     |                        |             |
| 10              | 16QAM      | 1       | 0         | 22.02                    | 21.96                       | 22.22                     | 23                     | 1           |
| 10              | 16QAM      | 1       | 25        | 22.01                    | 22.04                       | 22.12                     |                        |             |
| 10              | 16QAM      | 1       | 49        | 21.95                    | 21.92                       | 22.17                     |                        |             |
| 10              | 16QAM      | 25      | 0         | 20.76                    | 20.83                       | 20.95                     | 22                     | 2           |
| 10              | 16QAM      | 25      | 12        | 20.76                    | 20.84                       | 20.96                     |                        |             |
| 10              | 16QAM      | 25      | 25        | 20.73                    | 20.71                       | 20.86                     |                        |             |
| 10              | 16QAM      | 50      | 0         | 20.76                    | 20.79                       | 20.95                     | 22                     | 2           |
| 10              | 64QAM      | 1       | 0         | 20.88                    | 20.86                       | 21.10                     |                        |             |
| 10              | 64QAM      | 1       | 25        | 20.88                    | 20.92                       | 21.04                     |                        |             |
| 10              | 64QAM      | 1       | 49        | 20.80                    | 20.83                       | 21.07                     | 21                     | 3           |
| 10              | 64QAM      | 25      | 0         | 19.79                    | 19.82                       | 19.96                     |                        |             |
| 10              | 64QAM      | 25      | 12        | 19.77                    | 19.84                       | 19.97                     |                        |             |
| 10              | 64QAM      | 25      | 25        | 19.75                    | 19.74                       | 19.88                     | 21                     | 3           |
| 10              | 64QAM      | 25      | 25        | 19.75                    | 19.74                       | 19.88                     |                        |             |
| 10              | 64QAM      | 50      | 0         | 19.76                    | 19.79                       | 19.94                     |                        |             |
| Channel         |            |         |           | 20425                    | 20525                       | 20625                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 826.5                    | 836.5                       | 846.5                     |                        |             |
| 5               | QPSK       | 1       | 0         | 22.63                    | 22.56                       | 22.84                     |                        |             |
| 5               | QPSK       | 1       | 12        | 22.66                    | 22.63                       | 22.83                     | 24                     | 0           |
| 5               | QPSK       | 1       | 24        | 22.60                    | 22.57                       | 22.81                     |                        |             |
| 5               | QPSK       | 12      | 0         | 21.69                    | 21.68                       | 21.85                     | 23                     | 1           |
| 5               | QPSK       | 12      | 7         | 21.72                    | 21.68                       | 21.88                     |                        |             |
| 5               | QPSK       | 12      | 13        | 21.65                    | 21.67                       | 21.82                     |                        |             |
| 5               | QPSK       | 25      | 0         | 21.65                    | 21.68                       | 21.85                     | 23                     | 1           |
| 5               | 16QAM      | 1       | 0         | 22.02                    | 21.94                       | 22.18                     |                        |             |
| 5               | 16QAM      | 1       | 12        | 22.03                    | 22.00                       | 22.16                     |                        |             |
| 5               | 16QAM      | 1       | 24        | 21.93                    | 21.99                       | 22.23                     | 22                     | 2           |
| 5               | 16QAM      | 12      | 0         | 20.80                    | 20.80                       | 20.99                     |                        |             |
| 5               | 16QAM      | 12      | 7         | 20.82                    | 20.83                       | 21.03                     |                        |             |
| 5               | 16QAM      | 12      | 13        | 20.77                    | 20.78                       | 20.94                     | 22                     | 2           |
| 5               | 16QAM      | 25      | 0         | 20.77                    | 20.79                       | 20.97                     |                        |             |
| 5               | 64QAM      | 1       | 0         | 20.92                    | 20.79                       | 21.09                     |                        |             |
| 5               | 64QAM      | 1       | 12        | 20.91                    | 20.91                       | 21.07                     | 22                     | 2           |
| 5               | 64QAM      | 1       | 24        | 20.86                    | 20.88                       | 21.12                     |                        |             |
| 5               | 64QAM      | 12      | 0         | 19.80                    | 19.81                       | 19.96                     |                        |             |
| 5               | 64QAM      | 12      | 7         | 19.83                    | 19.83                       | 20.00                     | 21                     | 3           |
| 5               | 64QAM      | 12      | 13        | 19.77                    | 19.76                       | 19.93                     |                        |             |
| 5               | 64QAM      | 25      | 0         | 19.79                    | 19.80                       | 19.98                     |                        |             |
| Channel         |            |         |           | 20415                    | 20525                       | 20635                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 825.5                    | 836.5                       | 847.5                     |                        |             |
| 3               | QPSK       | 1       | 0         | 22.64                    | 22.61                       | 22.80                     |                        |             |
| 3               | QPSK       | 1       | 8         | 22.60                    | 22.57                       | 22.84                     | 24                     | 0           |
| 3               | QPSK       | 1       | 14        | 22.58                    | 22.55                       | 22.85                     |                        |             |
| 3               | QPSK       | 8       | 0         | 21.65                    | 21.63                       | 21.85                     | 23                     | 1           |
| 3               | QPSK       | 8       | 4         | 21.66                    | 21.67                       | 21.85                     |                        |             |



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|                 |       |    |    |       |       |       |                        |             |
|-----------------|-------|----|----|-------|-------|-------|------------------------|-------------|
| 3               | QPSK  | 8  | 7  | 21.65 | 21.64 | 21.93 |                        |             |
| 3               | QPSK  | 15 | 0  | 21.64 | 21.62 | 21.84 |                        |             |
| 3               | 16QAM | 1  | 0  | 22.00 | 21.98 | 22.14 |                        |             |
| 3               | 16QAM | 1  | 8  | 21.95 | 22.01 | 22.20 | 23                     | 1           |
| 3               | 16QAM | 1  | 14 | 21.95 | 21.97 | 22.18 |                        |             |
| 3               | 16QAM | 8  | 0  | 20.81 | 20.81 | 21.00 |                        |             |
| 3               | 16QAM | 8  | 4  | 20.84 | 20.84 | 21.02 | 22                     | 2           |
| 3               | 16QAM | 8  | 7  | 20.81 | 20.80 | 21.09 |                        |             |
| 3               | 16QAM | 15 | 0  | 20.76 | 20.75 | 20.95 |                        |             |
| 3               | 64QAM | 1  | 0  | 20.87 | 20.87 | 21.06 | 22                     | 2           |
| 3               | 64QAM | 1  | 8  | 20.88 | 20.87 | 21.12 |                        |             |
| 3               | 64QAM | 1  | 14 | 20.87 | 20.87 | 21.11 |                        |             |
| 3               | 64QAM | 8  | 0  | 19.78 | 19.78 | 19.96 | 21                     | 3           |
| 3               | 64QAM | 8  | 4  | 19.80 | 19.80 | 19.96 |                        |             |
| 3               | 64QAM | 8  | 7  | 19.78 | 19.78 | 20.05 |                        |             |
| 3               | 64QAM | 15 | 0  | 19.74 | 19.73 | 19.94 |                        |             |
| Channel         |       |    |    | 20407 | 20525 | 20643 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 824.7 | 836.5 | 848.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 22.62 | 22.55 | 22.84 | 24                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 22.65 | 22.63 | 22.81 |                        |             |
| 1.4             | QPSK  | 1  | 5  | 22.58 | 22.55 | 22.83 |                        |             |
| 1.4             | QPSK  | 3  | 0  | 22.63 | 22.60 | 22.86 |                        |             |
| 1.4             | QPSK  | 3  | 1  | 22.67 | 22.64 | 22.81 |                        |             |
| 1.4             | QPSK  | 3  | 3  | 22.61 | 22.61 | 22.84 |                        |             |
| 1.4             | QPSK  | 6  | 0  | 21.63 | 21.61 | 21.91 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 0  | 21.95 | 21.93 | 22.21 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 3  | 21.97 | 22.05 | 22.32 |                        |             |
| 1.4             | 16QAM | 1  | 5  | 21.94 | 21.93 | 22.22 |                        |             |
| 1.4             | 16QAM | 3  | 0  | 21.74 | 21.75 | 21.99 |                        |             |
| 1.4             | 16QAM | 3  | 1  | 21.80 | 21.76 | 22.00 |                        |             |
| 1.4             | 16QAM | 3  | 3  | 21.71 | 21.72 | 21.94 |                        |             |
| 1.4             | 16QAM | 6  | 0  | 20.80 | 20.76 | 21.04 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 0  | 20.85 | 20.85 | 21.11 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 3  | 20.94 | 20.93 | 21.19 |                        |             |
| 1.4             | 64QAM | 1  | 5  | 20.84 | 20.79 | 21.08 |                        |             |
| 1.4             | 64QAM | 3  | 0  | 20.80 | 20.79 | 21.03 |                        |             |
| 1.4             | 64QAM | 3  | 1  | 20.85 | 20.78 | 21.03 |                        |             |
| 1.4             | 64QAM | 3  | 3  | 20.77 | 20.78 | 21.01 |                        |             |
| 1.4             | 64QAM | 6  | 0  | 19.73 | 19.75 | 20.01 | 21                     | 3           |


**<LTE Band 7>**

| 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 20850                    | 21100                       | 21350                     |                        |             |
| Frequency (MHz) |            |         |           | 2510                     | 2535                        | 2560                      |                        |             |
| 20              | QPSK       | 1       | 0         | 22.13                    | 22.03                       | 22.22                     | 22.5                   | 0           |
| 20              | QPSK       | 1       | 49        | 22.11                    | 21.88                       | 22.15                     |                        |             |
| 20              | QPSK       | 1       | 99        | 22.10                    | 22.01                       | 22.11                     |                        |             |
| 20              | QPSK       | 50      | 0         | 22.13                    | 22.05                       | 22.20                     | 22.5                   | 0           |
| 20              | QPSK       | 50      | 24        | 22.12                    | 22.04                       | 22.12                     |                        |             |
| 20              | QPSK       | 50      | 50        | 22.12                    | 22.03                       | 22.11                     |                        |             |
| 20              | QPSK       | 100     | 0         | 22.08                    | 22.03                       | 22.09                     |                        |             |
| 20              | 16QAM      | 1       | 0         | 22.02                    | 21.91                       | 22.16                     | 22.5                   | 0           |
| 20              | 16QAM      | 1       | 49        | 22.13                    | 22.09                       | 22.12                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 21.82                    | 22.13                       | 22.10                     |                        |             |
| 20              | 16QAM      | 50      | 0         | 20.95                    | 20.79                       | 20.97                     | 21.5                   | 1           |
| 20              | 16QAM      | 50      | 24        | 21.00                    | 20.80                       | 20.92                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 20.94                    | 20.87                       | 20.92                     |                        |             |
| 20              | 16QAM      | 100     | 0         | 20.87                    | 20.82                       | 20.87                     |                        |             |
| 20              | 64QAM      | 1       | 0         | 20.94                    | 20.83                       | 21.11                     | 21.5                   | 1           |
| 20              | 64QAM      | 1       | 49        | 21.20                    | 20.97                       | 21.18                     |                        |             |
| 20              | 64QAM      | 1       | 99        | 21.10                    | 21.18                       | 21.11                     |                        |             |
| 20              | 64QAM      | 50      | 0         | 20.27                    | 20.07                       | 20.26                     | 20.5                   | 2           |
| 20              | 64QAM      | 50      | 24        | 20.30                    | 20.14                       | 20.18                     |                        |             |
| 20              | 64QAM      | 50      | 50        | 20.26                    | 20.19                       | 20.24                     |                        |             |
| 20              | 64QAM      | 100     | 0         | 20.18                    | 20.09                       | 20.21                     |                        |             |
| Channel         |            |         |           | 20825                    | 21100                       | 21375                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 2507.5                   | 2535                        | 2562.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 22.07                    | 22.03                       | 22.19                     | 22.5                   | 0           |
| 15              | QPSK       | 1       | 37        | 22.07                    | 21.88                       | 22.06                     |                        |             |
| 15              | QPSK       | 1       | 74        | 22.07                    | 22.00                       | 22.06                     |                        |             |
| 15              | QPSK       | 36      | 0         | 22.04                    | 22.05                       | 22.14                     | 22.5                   | 0           |
| 15              | QPSK       | 36      | 20        | 22.06                    | 22.01                       | 22.05                     |                        |             |
| 15              | QPSK       | 36      | 39        | 22.07                    | 21.94                       | 22.05                     |                        |             |
| 15              | QPSK       | 75      | 0         | 22.06                    | 21.98                       | 22.00                     |                        |             |
| 15              | 16QAM      | 1       | 0         | 21.93                    | 21.84                       | 22.13                     | 22.5                   | 0           |
| 15              | 16QAM      | 1       | 37        | 22.10                    | 22.07                       | 22.06                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 21.74                    | 22.09                       | 22.09                     |                        |             |
| 15              | 16QAM      | 36      | 0         | 20.86                    | 20.75                       | 20.91                     | 21.5                   | 1           |
| 15              | 16QAM      | 36      | 20        | 20.99                    | 20.71                       | 20.82                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 20.91                    | 20.82                       | 20.84                     |                        |             |
| 15              | 16QAM      | 75      | 0         | 20.80                    | 20.73                       | 20.86                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 20.87                    | 20.80                       | 21.01                     | 21.5                   | 1           |
| 15              | 64QAM      | 1       | 37        | 21.16                    | 20.95                       | 21.18                     |                        |             |
| 15              | 64QAM      | 1       | 74        | 21.02                    | 21.13                       | 21.11                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 20.25                    | 20.02                       | 20.21                     | 20.5                   | 2           |
| 15              | 64QAM      | 36      | 20        | 20.26                    | 20.11                       | 20.15                     |                        |             |
| 15              | 64QAM      | 36      | 39        | 20.22                    | 20.16                       | 20.21                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 20.17                    | 20.07                       | 20.16                     |                        |             |
| Channel         |            |         |           | 20800                    | 21100                       | 21400                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 2505                     | 2535                        | 2565                      |                        |             |
| 10              | QPSK       | 1       | 0         | 22.13                    | 21.98                       | 22.19                     | 22.5                   | 0           |
| 10              | QPSK       | 1       | 25        | 22.02                    | 21.80                       | 22.07                     |                        |             |
| 10              | QPSK       | 1       | 49        | 22.08                    | 21.98                       | 22.11                     |                        |             |
| 10              | QPSK       | 25      | 0         | 22.13                    | 22.02                       | 22.20                     | 22.5                   | 0           |
| 10              | QPSK       | 25      | 12        | 22.12                    | 22.03                       | 22.05                     |                        |             |



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|                 |       |    |    |        |       |        |                        |             |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| 10              | QPSK  | 25 | 25 | 22.02  | 22.03 | 22.11  |                        |             |
| 10              | QPSK  | 50 | 0  | 22.07  | 21.97 | 22.08  |                        |             |
| 10              | 16QAM | 1  | 0  | 21.98  | 21.84 | 22.12  |                        |             |
| 10              | 16QAM | 1  | 25 | 22.11  | 21.99 | 22.09  | 22.5                   | 0           |
| 10              | 16QAM | 1  | 49 | 21.80  | 22.13 | 22.10  |                        |             |
| 10              | 16QAM | 25 | 0  | 20.92  | 20.74 | 20.89  |                        |             |
| 10              | 16QAM | 25 | 12 | 20.97  | 20.73 | 20.87  | 21.5                   | 1           |
| 10              | 16QAM | 25 | 25 | 20.85  | 20.80 | 20.85  |                        |             |
| 10              | 16QAM | 50 | 0  | 20.85  | 20.77 | 20.87  |                        |             |
| 10              | 64QAM | 1  | 0  | 20.90  | 20.75 | 21.07  | 21.5                   | 1           |
| 10              | 64QAM | 1  | 25 | 21.17  | 20.97 | 21.18  |                        |             |
| 10              | 64QAM | 1  | 49 | 21.10  | 21.08 | 21.07  |                        |             |
| 10              | 64QAM | 25 | 0  | 20.26  | 20.05 | 20.21  | 20.5                   | 2           |
| 10              | 64QAM | 25 | 12 | 20.25  | 20.10 | 20.14  |                        |             |
| 10              | 64QAM | 25 | 25 | 20.26  | 20.09 | 20.17  |                        |             |
| 10              | 64QAM | 50 | 0  | 20.14  | 20.02 | 20.17  |                        |             |
| Channel         |       |    |    | 20775  | 21100 | 21425  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 2502.5 | 2535  | 2567.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 22.04  | 22.02 | 22.13  | 22.5                   | 0           |
| 5               | QPSK  | 1  | 12 | 22.07  | 21.83 | 22.07  |                        |             |
| 5               | QPSK  | 1  | 24 | 22.10  | 21.92 | 22.07  |                        |             |
| 5               | QPSK  | 12 | 0  | 22.05  | 22.03 | 22.19  | 22.5                   | 0           |
| 5               | QPSK  | 12 | 7  | 22.10  | 21.99 | 22.09  |                        |             |
| 5               | QPSK  | 12 | 13 | 22.03  | 22.01 | 22.03  |                        |             |
| 5               | QPSK  | 25 | 0  | 22.00  | 22.02 | 22.02  |                        |             |
| 5               | 16QAM | 1  | 0  | 21.99  | 21.91 | 22.11  | 22.5                   | 0           |
| 5               | 16QAM | 1  | 12 | 22.06  | 21.99 | 22.04  |                        |             |
| 5               | 16QAM | 1  | 24 | 21.80  | 22.04 | 22.08  |                        |             |
| 5               | 16QAM | 12 | 0  | 20.85  | 20.70 | 20.97  | 21.5                   | 1           |
| 5               | 16QAM | 12 | 7  | 20.94  | 20.72 | 20.90  |                        |             |
| 5               | 16QAM | 12 | 13 | 20.93  | 20.85 | 20.82  |                        |             |
| 5               | 16QAM | 25 | 0  | 20.78  | 20.80 | 20.82  |                        |             |
| 5               | 64QAM | 1  | 0  | 20.85  | 20.79 | 21.01  | 21.5                   | 1           |
| 5               | 64QAM | 1  | 12 | 21.11  | 20.95 | 21.09  |                        |             |
| 5               | 64QAM | 1  | 24 | 21.04  | 21.15 | 21.05  |                        |             |
| 5               | 64QAM | 12 | 0  | 20.18  | 19.97 | 20.26  | 20.5                   | 2           |
| 5               | 64QAM | 12 | 7  | 20.30  | 20.05 | 20.09  |                        |             |
| 5               | 64QAM | 12 | 13 | 20.16  | 20.13 | 20.23  |                        |             |
| 5               | 64QAM | 25 | 0  | 20.17  | 20.04 | 20.20  |                        |             |



**<LTE Band 12>**

| 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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 23060                    | 23095                       | 23130                     |                        |             |
| Frequency (MHz) |            |         |           | 704                      | 707.5                       | 711                       |                        |             |
| 10              | QPSK       | 1       | 0         | 22.53                    | 22.47                       | 22.55                     |                        |             |
| 10              | QPSK       | 1       | 25        | 22.73                    | 22.58                       | 22.56                     | 24                     | 0           |
| 10              | QPSK       | 1       | 49        | 22.58                    | 22.55                       | 22.62                     |                        |             |
| 10              | QPSK       | 25      | 0         | 21.62                    | 21.61                       | 21.59                     |                        |             |
| 10              | QPSK       | 25      | 12        | 21.64                    | 21.62                       | 21.60                     | 23                     | 1           |
| 10              | QPSK       | 25      | 25        | 21.66                    | 21.62                       | 21.53                     |                        |             |
| 10              | QPSK       | 50      | 0         | 21.65                    | 21.59                       | 21.57                     |                        |             |
| 10              | 16QAM      | 1       | 0         | 21.87                    | 21.86                       | 21.91                     | 23                     | 1           |
| 10              | 16QAM      | 1       | 25        | 22.03                    | 21.96                       | 21.92                     |                        |             |
| 10              | 16QAM      | 1       | 49        | 21.98                    | 21.91                       | 21.95                     |                        |             |
| 10              | 16QAM      | 25      | 0         | 20.75                    | 20.72                       | 20.69                     | 22                     | 2           |
| 10              | 16QAM      | 25      | 12        | 20.77                    | 20.77                       | 20.69                     |                        |             |
| 10              | 16QAM      | 25      | 25        | 20.75                    | 20.72                       | 20.69                     |                        |             |
| 10              | 16QAM      | 50      | 0         | 20.79                    | 20.74                       | 20.66                     | 22                     | 2           |
| 10              | 64QAM      | 1       | 0         | 20.72                    | 20.75                       | 20.79                     |                        |             |
| 10              | 64QAM      | 1       | 25        | 20.90                    | 20.85                       | 20.82                     |                        |             |
| 10              | 64QAM      | 1       | 49        | 20.87                    | 20.82                       | 20.85                     | 21                     | 3           |
| 10              | 64QAM      | 25      | 0         | 19.73                    | 19.73                       | 19.71                     |                        |             |
| 10              | 64QAM      | 25      | 12        | 19.78                    | 19.77                       | 19.71                     |                        |             |
| 10              | 64QAM      | 25      | 25        | 19.76                    | 19.71                       | 19.70                     | 21                     | 3           |
| 10              | 64QAM      | 50      | 0         | 19.76                    | 19.71                       | 19.66                     |                        |             |
| Channel         |            |         |           | 23035                    | 23095                       | 23155                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 701.5                    | 707.5                       | 713.5                     |                        |             |
| 5               | QPSK       | 1       | 0         | 22.54                    | 22.56                       | 22.50                     |                        |             |
| 5               | QPSK       | 1       | 12        | 22.54                    | 22.55                       | 22.60                     | 24                     | 0           |
| 5               | QPSK       | 1       | 24        | 22.60                    | 22.57                       | 22.56                     |                        |             |
| 5               | QPSK       | 12      | 0         | 21.55                    | 21.59                       | 21.51                     | 23                     | 1           |
| 5               | QPSK       | 12      | 7         | 21.58                    | 21.61                       | 21.71                     |                        |             |
| 5               | QPSK       | 12      | 13        | 21.66                    | 21.59                       | 21.61                     |                        |             |
| 5               | QPSK       | 25      | 0         | 21.68                    | 21.60                       | 21.55                     | 23                     | 1           |
| 5               | 16QAM      | 1       | 0         | 21.84                    | 21.95                       | 21.88                     |                        |             |
| 5               | 16QAM      | 1       | 12        | 21.93                    | 21.94                       | 21.94                     |                        |             |
| 5               | 16QAM      | 1       | 24        | 21.98                    | 21.93                       | 21.93                     | 22                     | 2           |
| 5               | 16QAM      | 12      | 0         | 20.68                    | 20.71                       | 20.68                     |                        |             |
| 5               | 16QAM      | 12      | 7         | 20.74                    | 20.76                       | 20.81                     |                        |             |
| 5               | 16QAM      | 12      | 13        | 20.78                    | 20.72                       | 20.77                     | 22                     | 2           |
| 5               | 16QAM      | 25      | 0         | 20.78                    | 20.71                       | 20.64                     |                        |             |
| 5               | 64QAM      | 1       | 0         | 20.75                    | 20.83                       | 20.83                     |                        |             |
| 5               | 64QAM      | 1       | 12        | 20.83                    | 20.85                       | 20.88                     | 22                     | 2           |
| 5               | 64QAM      | 1       | 24        | 20.85                    | 20.81                       | 20.82                     |                        |             |
| 5               | 64QAM      | 12      | 0         | 19.67                    | 19.69                       | 19.66                     |                        |             |
| 5               | 64QAM      | 12      | 7         | 19.70                    | 19.72                       | 19.79                     | 21                     | 3           |
| 5               | 64QAM      | 12      | 13        | 19.78                    | 19.69                       | 19.78                     |                        |             |
| 5               | 64QAM      | 25      | 0         | 19.78                    | 19.72                       | 19.65                     |                        |             |
| Channel         |            |         |           | 23025                    | 23095                       | 23165                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 700.5                    | 707.5                       | 714.5                     |                        |             |
| 3               | QPSK       | 1       | 0         | 22.53                    | 22.54                       | 22.59                     |                        |             |
| 3               | QPSK       | 1       | 8         | 22.52                    | 22.54                       | 22.57                     | 24                     | 0           |
| 3               | QPSK       | 1       | 14        | 22.53                    | 22.54                       | 22.56                     |                        |             |
| 3               | QPSK       | 8       | 0         | 21.58                    | 21.56                       | 21.59                     | 23                     | 1           |
| 3               | QPSK       | 8       | 4         | 21.58                    | 21.63                       | 21.66                     |                        |             |



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|                 |       |    |    |       |       |       |                        |             |
|-----------------|-------|----|----|-------|-------|-------|------------------------|-------------|
| 3               | QPSK  | 8  | 7  | 21.52 | 21.56 | 21.59 |                        |             |
| 3               | QPSK  | 15 | 0  | 21.55 | 21.60 | 21.63 |                        |             |
| 3               | 16QAM | 1  | 0  | 21.88 | 21.90 | 21.93 |                        |             |
| 3               | 16QAM | 1  | 8  | 21.88 | 21.94 | 21.96 | 23                     | 1           |
| 3               | 16QAM | 1  | 14 | 21.86 | 21.89 | 21.90 |                        |             |
| 3               | 16QAM | 8  | 0  | 20.71 | 20.78 | 20.81 |                        |             |
| 3               | 16QAM | 8  | 4  | 20.74 | 20.76 | 20.79 | 22                     | 2           |
| 3               | 16QAM | 8  | 7  | 20.73 | 20.77 | 20.80 |                        |             |
| 3               | 16QAM | 15 | 0  | 20.65 | 20.70 | 20.77 |                        |             |
| 3               | 64QAM | 1  | 0  | 20.76 | 20.80 | 20.84 | 22                     | 2           |
| 3               | 64QAM | 1  | 8  | 20.76 | 20.81 | 20.82 |                        |             |
| 3               | 64QAM | 1  | 14 | 20.79 | 20.80 | 20.81 |                        |             |
| 3               | 64QAM | 8  | 0  | 19.69 | 19.70 | 19.77 | 21                     | 3           |
| 3               | 64QAM | 8  | 4  | 19.69 | 19.74 | 19.76 |                        |             |
| 3               | 64QAM | 8  | 7  | 19.71 | 19.72 | 19.75 |                        |             |
| 3               | 64QAM | 15 | 0  | 19.65 | 19.69 | 19.76 |                        |             |
| Channel         |       |    |    | 23017 | 23095 | 23173 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 699.7 | 707.5 | 715.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 22.49 | 22.51 | 22.53 | 24                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 22.57 | 22.59 | 22.60 |                        |             |
| 1.4             | QPSK  | 1  | 5  | 22.49 | 22.50 | 22.54 |                        |             |
| 1.4             | QPSK  | 3  | 0  | 22.57 | 22.57 | 22.56 |                        |             |
| 1.4             | QPSK  | 3  | 1  | 22.57 | 22.58 | 22.62 |                        |             |
| 1.4             | QPSK  | 3  | 3  | 22.55 | 22.55 | 22.60 |                        |             |
| 1.4             | QPSK  | 6  | 0  | 21.54 | 21.55 | 21.56 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 0  | 21.82 | 21.89 | 21.86 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 3  | 21.91 | 21.95 | 21.95 |                        |             |
| 1.4             | 16QAM | 1  | 5  | 21.78 | 21.89 | 21.88 |                        |             |
| 1.4             | 16QAM | 3  | 0  | 21.61 | 21.68 | 21.66 |                        |             |
| 1.4             | 16QAM | 3  | 1  | 21.68 | 21.70 | 21.72 |                        |             |
| 1.4             | 16QAM | 3  | 3  | 21.63 | 21.65 | 21.68 |                        |             |
| 1.4             | 16QAM | 6  | 0  | 20.72 | 20.76 | 20.79 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 0  | 20.72 | 20.81 | 20.82 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 3  | 20.75 | 20.85 | 20.86 |                        |             |
| 1.4             | 64QAM | 1  | 5  | 20.73 | 20.80 | 20.77 |                        |             |
| 1.4             | 64QAM | 3  | 0  | 20.63 | 20.73 | 20.70 |                        |             |
| 1.4             | 64QAM | 3  | 1  | 20.69 | 20.73 | 20.79 |                        |             |
| 1.4             | 64QAM | 3  | 3  | 20.68 | 20.71 | 20.75 |                        |             |
| 1.4             | 64QAM | 6  | 0  | 19.64 | 19.70 | 19.71 | 21                     | 3           |



**<LTE Band 17>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 23780                 | 23790                    | 23800                  |                     |          |
| Frequency (MHz) |            |         |           | 709                   | 710                      | 711                    |                     |          |
| 10              | QPSK       | 1       | 0         | 22.54                 | 22.56                    | 22.62                  | 24                  | 0        |
| 10              | QPSK       | 1       | 25        | 22.65                 | 22.61                    | 22.62                  |                     |          |
| 10              | QPSK       | 1       | 49        | 22.72                 | 22.71                    | 22.71                  |                     |          |
| 10              | QPSK       | 25      | 0         | 21.69                 | 21.66                    | 21.65                  | 23                  | 1        |
| 10              | QPSK       | 25      | 12        | 21.72                 | 21.70                    | 21.70                  |                     |          |
| 10              | QPSK       | 25      | 25        | 21.67                 | 21.62                    | 21.62                  |                     |          |
| 10              | QPSK       | 50      | 0         | 21.70                 | 21.69                    | 21.66                  |                     |          |
| 10              | 16QAM      | 1       | 0         | 21.89                 | 21.93                    | 21.97                  | 23                  | 1        |
| 10              | 16QAM      | 1       | 25        | 22.02                 | 22.00                    | 21.96                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 22.13                 | 22.11                    | 22.05                  |                     |          |
| 10              | 16QAM      | 25      | 0         | 20.81                 | 20.77                    | 20.78                  | 22                  | 2        |
| 10              | 16QAM      | 25      | 12        | 20.81                 | 20.82                    | 20.77                  |                     |          |
| 10              | 16QAM      | 25      | 25        | 20.76                 | 20.79                    | 20.77                  |                     |          |
| 10              | 16QAM      | 50      | 0         | 20.79                 | 20.78                    | 20.76                  |                     |          |
| 10              | 64QAM      | 1       | 0         | 20.82                 | 20.80                    | 20.90                  | 22                  | 2        |
| 10              | 64QAM      | 1       | 25        | 20.91                 | 20.89                    | 20.87                  |                     |          |
| 10              | 64QAM      | 1       | 49        | 21.01                 | 20.98                    | 20.98                  |                     |          |
| 10              | 64QAM      | 25      | 0         | 19.82                 | 19.77                    | 19.80                  | 21                  | 3        |
| 10              | 64QAM      | 25      | 12        | 19.84                 | 19.83                    | 19.79                  |                     |          |
| 10              | 64QAM      | 25      | 25        | 19.78                 | 19.78                    | 19.75                  |                     |          |
| 10              | 64QAM      | 50      | 0         | 19.79                 | 19.78                    | 19.75                  |                     |          |
| Channel         |            |         |           | 23755                 | 23790                    | 23825                  |                     |          |
| Frequency (MHz) |            |         |           | 706.5                 | 710                      | 713.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 22.55                 | 22.53                    | 22.60                  | 24                  | 0        |
| 5               | QPSK       | 1       | 12        | 22.67                 | 22.60                    | 22.61                  |                     |          |
| 5               | QPSK       | 1       | 24        | 22.65                 | 22.69                    | 22.69                  |                     |          |
| 5               | QPSK       | 12      | 0         | 21.72                 | 21.66                    | 21.63                  | 23                  | 1        |
| 5               | QPSK       | 12      | 7         | 21.73                 | 21.68                    | 21.67                  |                     |          |
| 5               | QPSK       | 12      | 13        | 21.69                 | 21.66                    | 21.61                  |                     |          |
| 5               | QPSK       | 25      | 0         | 21.68                 | 21.66                    | 21.66                  |                     |          |
| 5               | 16QAM      | 1       | 0         | 21.95                 | 21.86                    | 21.98                  | 23                  | 1        |
| 5               | 16QAM      | 1       | 12        | 22.07                 | 21.97                    | 22.01                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 21.98                 | 22.06                    | 22.02                  |                     |          |
| 5               | 16QAM      | 12      | 0         | 20.82                 | 20.79                    | 20.78                  | 22                  | 2        |
| 5               | 16QAM      | 12      | 7         | 20.85                 | 20.81                    | 20.81                  |                     |          |
| 5               | 16QAM      | 12      | 13        | 20.85                 | 20.78                    | 20.75                  |                     |          |
| 5               | 16QAM      | 25      | 0         | 20.80                 | 20.78                    | 20.76                  |                     |          |
| 5               | 64QAM      | 1       | 0         | 20.82                 | 20.78                    | 20.83                  | 22                  | 2        |
| 5               | 64QAM      | 1       | 12        | 20.95                 | 20.88                    | 20.87                  |                     |          |
| 5               | 64QAM      | 1       | 24        | 20.90                 | 20.95                    | 20.91                  |                     |          |
| 5               | 64QAM      | 12      | 0         | 19.82                 | 19.78                    | 19.77                  | 21                  | 3        |
| 5               | 64QAM      | 12      | 7         | 19.85                 | 19.82                    | 19.78                  |                     |          |
| 5               | 64QAM      | 12      | 13        | 19.84                 | 19.78                    | 19.75                  |                     |          |
| 5               | 64QAM      | 25      | 0         | 19.79                 | 19.78                    | 19.75                  |                     |          |



**<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) | MPR<br>(dB) |
|-----------------|------------|---------|-----------|--------------------------|-----------------------------|---------------------------|------------------------|-------------|
| Channel         |            |         |           | 132072                   | 132322                      | 132572                    |                        |             |
| Frequency (MHz) |            |         |           | 1720                     | 1745                        | 1770                      |                        |             |
| 20              | QPSK       | 1       | 0         | 21.94                    | 22.05                       | 21.94                     | 22.5                   | 0           |
| 20              | QPSK       | 1       | 49        | 21.89                    | 21.98                       | 21.94                     |                        |             |
| 20              | QPSK       | 1       | 99        | 21.99                    | 21.94                       | 21.86                     |                        |             |
| 20              | QPSK       | 50      | 0         | 21.29                    | 21.30                       | 21.22                     | 21.5                   | 1           |
| 20              | QPSK       | 50      | 24        | 21.23                    | 21.28                       | 21.22                     |                        |             |
| 20              | QPSK       | 50      | 50        | 21.22                    | 21.23                       | 21.17                     |                        |             |
| 20              | QPSK       | 100     | 0         | 21.24                    | 21.24                       | 21.18                     | 21.5                   | 1           |
| 20              | 16QAM      | 1       | 0         | 21.16                    | 21.16                       | 21.15                     |                        |             |
| 20              | 16QAM      | 1       | 49        | 21.12                    | 21.25                       | 21.15                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 21.13                    | 21.14                       | 21.09                     | 20.5                   | 2           |
| 20              | 16QAM      | 50      | 0         | 20.44                    | 20.48                       | 20.50                     |                        |             |
| 20              | 16QAM      | 50      | 24        | 20.48                    | 20.46                       | 20.47                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 20.47                    | 20.47                       | 20.46                     | 20.5                   | 2           |
| 20              | 16QAM      | 100     | 0         | 20.48                    | 20.45                       | 20.46                     |                        |             |
| 20              | 64QAM      | 1       | 0         | 20.24                    | 20.29                       | 20.30                     | 20.5                   | 2           |
| 20              | 64QAM      | 1       | 49        | 20.21                    | 20.34                       | 20.30                     |                        |             |
| 20              | 64QAM      | 1       | 99        | 20.26                    | 20.26                       | 20.19                     |                        |             |
| 20              | 64QAM      | 50      | 0         | 19.11                    | 19.24                       | 19.14                     | 19.5                   | 3           |
| 20              | 64QAM      | 50      | 24        | 19.19                    | 19.24                       | 19.15                     |                        |             |
| 20              | 64QAM      | 50      | 50        | 19.13                    | 19.14                       | 19.10                     |                        |             |
| 20              | 64QAM      | 100     | 0         | 19.18                    | 19.17                       | 19.09                     |                        |             |
| Channel         |            |         |           | 132047                   | 132322                      | 132597                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1717.5                   | 1745                        | 1772.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 21.90                    | 21.95                       | 21.91                     | 22.5                   | 0           |
| 15              | QPSK       | 1       | 37        | 21.84                    | 21.94                       | 21.85                     |                        |             |
| 15              | QPSK       | 1       | 74        | 21.97                    | 21.84                       | 21.83                     |                        |             |
| 15              | QPSK       | 36      | 0         | 21.20                    | 21.21                       | 21.20                     | 21.5                   | 1           |
| 15              | QPSK       | 36      | 20        | 21.21                    | 21.22                       | 21.12                     |                        |             |
| 15              | QPSK       | 36      | 39        | 21.19                    | 21.16                       | 21.08                     |                        |             |
| 15              | QPSK       | 75      | 0         | 21.17                    | 21.19                       | 21.18                     | 21.5                   | 1           |
| 15              | 16QAM      | 1       | 0         | 21.08                    | 21.08                       | 21.08                     |                        |             |
| 15              | 16QAM      | 1       | 37        | 21.09                    | 21.21                       | 21.08                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 21.09                    | 21.04                       | 21.08                     | 20.5                   | 2           |
| 15              | 16QAM      | 36      | 0         | 20.35                    | 20.48                       | 20.50                     |                        |             |
| 15              | 16QAM      | 36      | 20        | 20.48                    | 20.48                       | 20.37                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 20.40                    | 20.43                       | 20.44                     | 20.5                   | 2           |
| 15              | 16QAM      | 75      | 0         | 20.46                    | 20.50                       | 20.37                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 20.24                    | 20.27                       | 20.25                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 20.11                    | 20.28                       | 20.24                     | 20.5                   | 2           |
| 15              | 64QAM      | 1       | 74        | 20.19                    | 20.25                       | 20.15                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 19.10                    | 19.15                       | 19.14                     | 19.5                   | 3           |
| 15              | 64QAM      | 36      | 20        | 19.09                    | 19.22                       | 19.13                     |                        |             |
| 15              | 64QAM      | 36      | 39        | 19.10                    | 19.06                       | 19.07                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 19.13                    | 19.09                       | 19.06                     |                        |             |
| Channel         |            |         |           | 132022                   | 132322                      | 132622                    | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 1715                     | 1745                        | 1775                      |                        |             |
| 10              | QPSK       | 1       | 0         | 21.86                    | 22.04                       | 21.88                     | 22.5                   | 0           |
| 10              | QPSK       | 1       | 25        | 21.81                    | 21.98                       | 21.91                     |                        |             |
| 10              | QPSK       | 1       | 49        | 21.94                    | 21.92                       | 21.76                     |                        |             |
| 10              | QPSK       | 25      | 0         | 21.20                    | 21.24                       | 21.16                     | 21.5                   | 1           |
| 10              | QPSK       | 25      | 12        | 21.17                    | 21.26                       | 21.12                     |                        |             |



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|                 |       |    |    |        |        |        |                        |             |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| 10              | QPSK  | 25 | 25 | 21.20  | 21.17  | 21.08  |                        |             |
| 10              | QPSK  | 50 | 0  | 21.23  | 21.17  | 21.13  |                        |             |
| 10              | 16QAM | 1  | 0  | 21.07  | 21.15  | 21.06  |                        |             |
| 10              | 16QAM | 1  | 25 | 21.04  | 21.22  | 21.09  | 21.5                   | 1           |
| 10              | 16QAM | 1  | 49 | 21.03  | 21.09  | 21.08  |                        |             |
| 10              | 16QAM | 25 | 0  | 20.35  | 20.50  | 20.42  |                        |             |
| 10              | 16QAM | 25 | 12 | 20.49  | 20.50  | 20.42  | 20.5                   | 2           |
| 10              | 16QAM | 25 | 25 | 20.47  | 20.44  | 20.45  |                        |             |
| 10              | 16QAM | 50 | 0  | 20.44  | 20.48  | 20.42  |                        |             |
| 10              | 64QAM | 1  | 0  | 20.20  | 20.20  | 20.24  | 20.5                   | 2           |
| 10              | 64QAM | 1  | 25 | 20.20  | 20.31  | 20.22  |                        |             |
| 10              | 64QAM | 1  | 49 | 20.17  | 20.18  | 20.13  |                        |             |
| 10              | 64QAM | 25 | 0  | 19.06  | 19.17  | 19.05  | 19.5                   | 3           |
| 10              | 64QAM | 25 | 12 | 19.13  | 19.20  | 19.05  |                        |             |
| 10              | 64QAM | 25 | 25 | 19.09  | 19.13  | 19.02  |                        |             |
| 10              | 64QAM | 50 | 0  | 19.10  | 19.15  | 19.09  |                        |             |
| Channel         |       |    |    | 131997 | 132322 | 132647 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1712.5 | 1745   | 1777.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 21.86  | 22.04  | 21.92  | 22.5                   | 0           |
| 5               | QPSK  | 1  | 12 | 21.88  | 21.97  | 21.89  |                        |             |
| 5               | QPSK  | 1  | 24 | 21.99  | 21.90  | 21.81  |                        |             |
| 5               | QPSK  | 12 | 0  | 21.20  | 21.20  | 21.19  | 21.5                   | 1           |
| 5               | QPSK  | 12 | 7  | 21.17  | 21.28  | 21.21  |                        |             |
| 5               | QPSK  | 12 | 13 | 21.13  | 21.17  | 21.17  |                        |             |
| 5               | QPSK  | 25 | 0  | 21.17  | 21.16  | 21.12  |                        |             |
| 5               | 16QAM | 1  | 0  | 21.09  | 21.13  | 21.12  | 21.5                   | 1           |
| 5               | 16QAM | 1  | 12 | 21.05  | 21.21  | 21.15  |                        |             |
| 5               | 16QAM | 1  | 24 | 21.05  | 21.04  | 21.09  |                        |             |
| 5               | 16QAM | 12 | 0  | 20.38  | 20.50  | 20.50  | 20.5                   | 2           |
| 5               | 16QAM | 12 | 7  | 20.47  | 20.48  | 20.46  |                        |             |
| 5               | 16QAM | 12 | 13 | 20.40  | 20.41  | 20.39  |                        |             |
| 5               | 16QAM | 25 | 0  | 20.49  | 20.47  | 20.40  |                        |             |
| 5               | 64QAM | 1  | 0  | 20.18  | 20.25  | 20.21  | 20.5                   | 2           |
| 5               | 64QAM | 1  | 12 | 20.14  | 20.24  | 20.28  |                        |             |
| 5               | 64QAM | 1  | 24 | 20.22  | 20.20  | 20.14  |                        |             |
| 5               | 64QAM | 12 | 0  | 19.01  | 19.24  | 19.04  | 19.5                   | 3           |
| 5               | 64QAM | 12 | 7  | 19.17  | 19.24  | 19.10  |                        |             |
| 5               | 64QAM | 12 | 13 | 19.10  | 19.07  | 19.01  |                        |             |
| 5               | 64QAM | 25 | 0  | 19.10  | 19.08  | 19.01  |                        |             |
| Channel         |       |    |    | 131987 | 132322 | 132657 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1711.5 | 1745   | 1778.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 21.87  | 21.96  | 21.85  | 22.5                   | 0           |
| 3               | QPSK  | 1  | 8  | 21.83  | 21.97  | 21.84  |                        |             |
| 3               | QPSK  | 1  | 14 | 21.95  | 21.88  | 21.86  |                        |             |
| 3               | QPSK  | 8  | 0  | 21.25  | 21.24  | 21.20  | 21.5                   | 1           |
| 3               | QPSK  | 8  | 4  | 21.20  | 21.25  | 21.12  |                        |             |
| 3               | QPSK  | 8  | 7  | 21.20  | 21.23  | 21.09  |                        |             |
| 3               | QPSK  | 15 | 0  | 21.21  | 21.14  | 21.14  |                        |             |
| 3               | 16QAM | 1  | 0  | 21.08  | 21.09  | 21.11  | 21.5                   | 1           |
| 3               | 16QAM | 1  | 8  | 21.10  | 21.17  | 21.15  |                        |             |
| 3               | 16QAM | 1  | 14 | 21.07  | 21.07  | 20.99  |                        |             |
| 3               | 16QAM | 8  | 0  | 20.40  | 20.46  | 20.43  | 20.5                   | 2           |
| 3               | 16QAM | 8  | 4  | 20.45  | 20.47  | 20.46  |                        |             |
| 3               | 16QAM | 8  | 7  | 20.46  | 20.45  | 20.44  |                        |             |
| 3               | 16QAM | 15 | 0  | 20.48  | 20.50  | 20.44  |                        |             |
| 3               | 64QAM | 1  | 0  | 20.21  | 20.23  | 20.22  | 20.5                   | 2           |



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|                 |       |    |    |        |        |        |                        |             |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| 3               | 64QAM | 1  | 8  | 20.17  | 20.29  | 20.21  | 19.5                   | 3           |
| 3               | 64QAM | 1  | 14 | 20.16  | 20.20  | 20.11  |                        |             |
| 3               | 64QAM | 8  | 0  | 19.10  | 19.24  | 19.11  |                        |             |
| 3               | 64QAM | 8  | 4  | 19.09  | 19.24  | 19.11  |                        |             |
| 3               | 64QAM | 8  | 7  | 19.10  | 19.10  | 19.04  |                        |             |
| 3               | 64QAM | 15 | 0  | 19.18  | 19.12  | 19.08  |                        |             |
| Channel         |       |    |    | 131979 | 132322 | 132665 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1710.7 | 1745   | 1779.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 21.94  | 21.98  | 21.91  | 22.5                   | 0           |
| 1.4             | QPSK  | 1  | 3  | 21.88  | 21.96  | 21.85  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 21.95  | 21.89  | 21.79  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 21.27  | 21.26  | 21.18  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 21.15  | 21.27  | 21.16  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 21.13  | 21.18  | 21.09  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 21.23  | 21.19  | 21.17  | 21.5                   | 1           |
| 1.4             | 16QAM | 1  | 0  | 21.15  | 21.07  | 21.12  | 21.5                   | 1           |
| 1.4             | 16QAM | 1  | 3  | 21.09  | 21.25  | 21.05  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 21.04  | 21.06  | 21.08  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 20.98  | 21.07  | 21.06  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 21.00  | 21.07  | 21.08  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 21.05  | 21.00  | 20.89  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 20.49  | 20.50  | 20.40  | 20.5                   | 2           |
| 1.4             | 64QAM | 1  | 0  | 20.20  | 20.24  | 20.26  | 20.5                   | 2           |
| 1.4             | 64QAM | 1  | 3  | 20.20  | 20.29  | 20.21  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 20.25  | 20.20  | 20.10  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 20.19  | 20.22  | 20.22  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 20.16  | 20.22  | 20.15  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 20.12  | 20.12  | 20.01  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 19.08  | 19.10  | 19.01  | 19.5                   | 3           |

**<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.

| 2CC Downlink Carrier Aggregation |             |                                 |
|----------------------------------|-------------|---------------------------------|
| Number                           | Combination | Covered by Measurement Superset |
| 1                                | 2A-4A       |                                 |
| 2                                | 2A-5A       |                                 |
| 3                                | 2A-7A       |                                 |
| 4                                | 4A-5A       |                                 |
| 5                                | 4A-7A       |                                 |
| 6                                | 4A-12A      |                                 |
| 7                                | 4A-17A      |                                 |
| 8                                | 5A-7A       |                                 |
| 9                                | 12A-66A     |                                 |
| 10                               | 4A-4A       |                                 |
| 11                               | 7A-7A       |                                 |
| 12                               | 66A-66A     |                                 |
| 13                               | 7B          |                                 |
| 14                               | 7C          |                                 |
| 15                               | 66B         |                                 |
| 16                               | 66C         |                                 |

**<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  |                | CA Configuration (BCS) | 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 |                | 2A-4A                  | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 4        | 20       | 2132.5         | 2175       | 22.93                  | 22.90                 |
|            |                | 2A-5A                  | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 5        | 10       | 881.5          | 2525       | 22.79                  | 22.90                 |
|            |                | 2A-7A                  | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 7        | 20       | 2655           | 3100       | 22.81                  | 22.90                 |
|            |                | 4A-5A                  | 4        | 20       | 1745           | 20300      | QPSK | 1      | 49           | 5        | 10       | 881.5          | 2525       | 22.65                  | 22.72                 |
|            |                | 4A-7A                  | 4        | 20       | 1745           | 20300      | QPSK | 1      | 49           | 7        | 20       | 2655           | 3100       | 22.77                  | 22.72                 |
|            |                | 4A-12A                 | 4        | 20       | 1745           | 20300      | QPSK | 1      | 49           | 12       | 10       | 737.5          | 5095       | 22.74                  | 22.72                 |
|            |                | 4A-17A                 | 4        | 10       | 1745           | 20300      | QPSK | 1      | 0            | 17       | 10       | 740            | 5790       | 22.53                  | 22.69                 |
|            |                | 5A-7A                  | 5        | 10       | 836.5          | 20525      | QPSK | 1      | 25           | 7        | 20       | 2655           | 3100       | 22.81                  | 22.87                 |
|            |                | 12A-66A                | 12       | 10       | 704            | 23060      | QPSK | 1      | 25           | 66       | 20       | 2155           | 66886      | 22.66                  | 22.73                 |
| Intra-Band | Non-Contiguous | 4A-4A                  | 4        | 20       | 1745           | 20300      | QPSK | 1      | 49           | 4        | 20       | 2120           | 2050       | 22.83                  | 22.72                 |
|            |                | 7A-7A                  | 7        | 20       | 2560           | 21350      | QPSK | 1      | 0            | 7        | 20       | 2630           | 2850       | 23.01                  | 23.16                 |
|            |                | 66A-66A                | 66       | 20       | 1770           | 132572     | QPSK | 1      | 0            | 66       | 20       | 2120           | 66536      | 23.05                  | 22.99                 |
|            | Contiguous     | 7B                     | 7        | 15       | 2562.5         | 21375      | QPSK | 1      | 74           | 7        | 5        | 2673.2         | 3282       | 23.14                  | 23.16                 |
|            |                | 7C                     | 7        | 20       | 2560           | 21350      | QPSK | 1      | 0            | 7        | 20       | 2660.2         | 3152       | 23.28                  | 23.16                 |
|            |                | 66B                    | 66       | 15       | 1777.5         | 132647     | QPSK | 1      | 12           | 66       | 5        | 2168.2         | 67018      | 23.05                  | 22.99                 |
|            |                | 66C                    | 66       | 20       | 1770           | 132572     | QPSK | 1      | 0            | 66       | 20       | 2150.2         | 66838      | 23.06                  | 22.99                 |

**<WLAN Conducted Power>**
**General Note:**

1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
2. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
3. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
4. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
  - a. When the reported SAR of the initial test position is  $\leq 0.4$  W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
  - b. When the reported SAR of the test position is  $> 0.4$  W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is  $\leq 0.8$  W/kg or all required test position are tested.
  - c. For all positions/configurations, when the reported SAR is  $> 0.8$  W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is  $\leq 1.2$  W/kg or all required channels are tested.

**<Default / Product Specific power mode>**
**<2.4GHz WLAN>**

|             | Mode              | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|-------------|-------------------|---------|-----------------|---------------------|---------------|--------------|
| 2.4GHz WLAN | 802.11b 1Mbps     | 1       | 2412            | 17.55               | 19.00         | 100.00       |
|             |                   | 6       | 2437            | 17.10               | 19.00         |              |
|             |                   | 11      | 2462            | 17.41               | 19.00         |              |
|             | 802.11g 6Mbps     | 1       | 2412            | 15.12               | 16.50         | 98.28        |
|             |                   | 6       | 2437            | 14.56               | 16.50         |              |
|             |                   | 11      | 2462            | 14.84               | 16.50         |              |
|             | 802.11n-HT20 MCS0 | 1       | 2412            | 14.23               | 15.50         | 98.16        |
|             |                   | 6       | 2437            | 13.97               | 15.50         |              |
|             |                   | 11      | 2462            | 14.22               | 15.50         |              |

**<5GHz WLAN >**

|             | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.2GHz WLAN | 802.11a 6Mbps       | 36      | 5180            | 15.43               | 17.00         | 98.28        |
|             |                     | 40      | 5200            | 15.47               | 17.00         |              |
|             |                     | 44      | 5220            | 15.60               | 17.00         |              |
|             |                     | 48      | 5240            | 15.67               | 17.00         |              |
|             | 802.11n-HT20 MCS0   | 36      | 5180            | 14.87               | 16.50         | 98.16        |
|             |                     | 40      | 5200            | 14.83               | 16.50         |              |
|             |                     | 44      | 5220            | 14.89               | 16.50         |              |
|             |                     | 48      | 5240            | 14.96               | 16.50         |              |
|             | 802.11n-HT40 MCS0   | 38      | 5190            | 12.93               | 14.50         | 96.32        |
|             |                     | 46      | 5230            | 13.06               | 14.50         |              |
|             | 802.11ac-VHT20 MCS0 | 36      | 5180            | 14.39               | 16.00         | 97.79        |
|             |                     | 40      | 5200            | 14.38               | 16.00         |              |
|             |                     | 44      | 5220            | 14.47               | 16.00         |              |
|             |                     | 48      | 5240            | 14.69               | 16.00         |              |
|             | 802.11ac-VHT40 MCS0 | 38      | 5190            | 12.88               | 14.50         | 96.32        |
|             |                     | 46      | 5230            | 13.50               | 14.50         |              |
|             | 802.11ac-VHT80 MCS0 | 42      | 5210            | 10.18               | 12.00         | 93.02        |

|             | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.3GHz WLAN | 802.11a 6Mbps       | 52      | 5260            | 15.12               | 17.00         | 98.28        |
|             |                     | 56      | 5280            | 15.17               | 17.00         |              |
|             |                     | 60      | 5300            | 15.23               | 17.00         |              |
|             |                     | 64      | 5320            | 15.50               | 17.00         |              |
|             | 802.11n-HT20 MCS0   | 52      | 5260            | 14.97               | 16.50         | 98.16        |
|             |                     | 56      | 5280            | 14.99               | 16.50         |              |
|             |                     | 60      | 5300            | 15.20               | 16.50         |              |
|             |                     | 64      | 5320            | 15.38               | 16.50         |              |
|             | 802.11n-HT40 MCS0   | 54      | 5270            | 13.03               | 15.00         | 96.32        |
|             |                     | 62      | 5310            | 13.27               | 15.00         |              |
|             | 802.11ac-VHT20 MCS0 | 52      | 5260            | 14.59               | 16.50         | 97.79        |
|             |                     | 56      | 5280            | 14.56               | 16.50         |              |
|             |                     | 60      | 5300            | 14.77               | 16.50         |              |
|             |                     | 64      | 5320            | 15.05               | 16.50         |              |
|             | 802.11ac-VHT40 MCS0 | 54      | 5270            | 13.49               | 15.00         | 96.32        |
|             |                     | 62      | 5310            | 13.75               | 15.00         |              |
|             | 802.11ac-VHT80 MCS0 | 58      | 5290            | 10.16               | 12.00         | 93.02        |

|             | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.5GHz WLAN | 802.11a 6Mbps       | 100     | 5500            | 15.31               | 16.50         | 98.28        |
|             |                     | 116     | 5580            | 15.27               | 16.50         |              |
|             |                     | 124     | 5620            | 14.98               | 16.50         |              |
|             |                     | 132     | 5660            | 15.07               | 16.50         |              |
|             |                     | 144     | 5720            | 15.16               | 16.50         |              |
|             | 802.11n-HT20 MCS0   | 100     | 5500            | 15.07               | 16.00         | 98.16        |
|             |                     | 116     | 5580            | 15.10               | 16.00         |              |
|             |                     | 124     | 5620            | 14.85               | 16.00         |              |
|             |                     | 132     | 5660            | 14.93               | 16.00         |              |
|             |                     | 144     | 5720            | 14.96               | 16.00         |              |
|             | 802.11n-HT40 MCS0   | 102     | 5510            | 12.62               | 14.00         | 96.32        |
|             |                     | 110     | 5550            | 12.90               | 14.00         |              |
|             |                     | 126     | 5630            | 12.65               | 14.00         |              |
|             |                     | 134     | 5670            | 12.32               | 14.00         |              |
|             |                     | 142     | 5710            | 12.48               | 14.00         |              |
|             | 802.11ac-VHT20 MCS0 | 100     | 5500            | 14.27               | 15.50         | 97.79        |
|             |                     | 116     | 5580            | 14.26               | 15.50         |              |
|             |                     | 124     | 5620            | 13.95               | 15.50         |              |
|             |                     | 132     | 5660            | 14.03               | 15.50         |              |
|             |                     | 144     | 5720            | 14.40               | 15.50         |              |
|             | 802.11ac-VHT40 MCS0 | 102     | 5510            | 12.98               | 14.50         | 96.32        |
|             |                     | 110     | 5550            | 13.35               | 14.50         |              |
|             |                     | 126     | 5630            | 13.15               | 14.50         |              |
|             |                     | 134     | 5670            | 12.80               | 14.50         |              |
|             |                     | 142     | 5710            | 12.96               | 14.50         |              |
|             | 802.11ac-VHT80 MCS0 | 106     | 5530            | 10.34               | 12.00         | 93.02        |
|             |                     | 122     | 5610            | 10.00               | 12.00         |              |
|             |                     | 138     | 5690            | 10.19               | 12.00         |              |

|             | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.8GHz WLAN | 802.11a 6Mbps       | 149     | 5745            | 14.62               | 16.00         | 98.28        |
|             |                     | 157     | 5785            | 14.34               | 16.00         |              |
|             |                     | 165     | 5825            | 14.80               | 16.00         |              |
|             | 802.11n-HT20 MCS0   | 149     | 5745            | 14.46               | 16.00         | 98.16        |
|             |                     | 157     | 5785            | 14.20               | 16.00         |              |
|             |                     | 165     | 5825            | 14.61               | 16.00         |              |
|             | 802.11n-HT40 MCS0   | 151     | 5755            | 12.88               | 14.50         | 96.32        |
|             |                     | 159     | 5795            | 12.69               | 14.50         |              |
|             | 802.11ac-VHT20 MCS0 | 149     | 5745            | 13.79               | 15.50         | 97.79        |
|             |                     | 157     | 5785            | 13.51               | 15.50         |              |
|             |                     | 165     | 5825            | 13.67               | 15.50         |              |
|             | 802.11ac-VHT40 MCS0 | 151     | 5755            | 13.87               | 15.50         | 96.32        |
|             |                     | 159     | 5795            | 13.84               | 15.50         |              |
|             | 802.11ac-VHT80 MCS0 | 155     | 5775            | 10.19               | 12.00         | 93.02        |

**<Near-Body / Hotspot power mode>****<2.4GHz WLAN>**

| 2.4GHz WLAN | Mode              | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|-------------|-------------------|---------|-----------------|---------------------|---------------|--------------|
|             | 802.11b 1Mbps     | 1       | 2412            | 17.55               | 19.00         | 100.00       |
|             |                   | 6       | 2437            | 17.10               | 19.00         |              |
|             |                   | 11      | 2462            | 17.41               | 19.00         |              |
|             | 802.11g 6Mbps     | 1       | 2412            | 15.12               | 16.50         | 98.28        |
|             |                   | 6       | 2437            | 14.56               | 16.50         |              |
|             |                   | 11      | 2462            | 14.84               | 16.50         |              |
|             | 802.11n-HT20 MCS0 | 1       | 2412            | 14.23               | 15.50         | 98.16        |
|             |                   | 6       | 2437            | 13.97               | 15.50         |              |
|             |                   | 11      | 2462            | 14.22               | 15.50         |              |

**<5GHz WLAN >**

| 5.2GHz WLAN | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
|             | 802.11a 6Mbps       | 36      | 5180            | 14.80               | 15.00         | 98.28        |
|             |                     | 40      | 5200            | 13.30               | 15.00         |              |
|             |                     | 44      | 5220            | 14.89               | 15.00         |              |
|             |                     | 48      | 5240            | 14.86               | 15.00         |              |
|             | 802.11n-HT20 MCS0   | 36      | 5180            | 14.87               | 15.00         | 98.16        |
|             |                     | 40      | 5200            | 14.83               | 15.00         |              |
|             |                     | 44      | 5220            | 14.89               | 15.00         |              |
|             |                     | 48      | 5240            | 14.96               | 15.00         |              |
|             | 802.11n-HT40 MCS0   | 38      | 5190            | 12.93               | 14.50         | 96.32        |
|             |                     | 46      | 5230            | 13.06               | 14.50         |              |
|             | 802.11ac-VHT20 MCS0 | 36      | 5180            | 14.39               | 15.00         | 97.79        |
|             |                     | 40      | 5200            | 14.38               | 15.00         |              |
|             |                     | 44      | 5220            | 14.47               | 15.00         |              |
|             |                     | 48      | 5240            | 14.69               | 15.00         |              |
|             | 802.11ac-VHT40 MCS0 | 38      | 5190            | 12.88               | 14.50         | 96.32        |
|             |                     | 46      | 5230            | 13.50               | 14.50         |              |
|             | 802.11ac-VHT80 MCS0 | 42      | 5210            | 10.18               | 12.00         | 93.02        |

|             | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.3GHz WLAN | 802.11a 6Mbps       | 52      | 5260            | 15.12               | 17.00         | 98.28        |
|             |                     | 56      | 5280            | 15.17               | 17.00         |              |
|             |                     | 60      | 5300            | 15.23               | 17.00         |              |
|             |                     | 64      | 5320            | 15.50               | 17.00         |              |
|             | 802.11n-HT20 MCS0   | 52      | 5260            | 14.97               | 16.50         | 98.16        |
|             |                     | 56      | 5280            | 14.99               | 16.50         |              |
|             |                     | 60      | 5300            | 15.20               | 16.50         |              |
|             |                     | 64      | 5320            | 15.38               | 16.50         |              |
|             | 802.11n-HT40 MCS0   | 54      | 5270            | 13.03               | 15.00         | 96.32        |
|             |                     | 62      | 5310            | 13.27               | 15.00         |              |
|             | 802.11ac-VHT20 MCS0 | 52      | 5260            | 14.59               | 16.50         | 97.79        |
|             |                     | 56      | 5280            | 14.56               | 16.50         |              |
|             |                     | 60      | 5300            | 14.77               | 16.50         |              |
|             |                     | 64      | 5320            | 15.05               | 16.50         |              |
|             | 802.11ac-VHT40 MCS0 | 54      | 5270            | 13.49               | 15.00         | 96.32        |
|             |                     | 62      | 5310            | 13.75               | 15.00         |              |
|             | 802.11ac-VHT80 MCS0 | 58      | 5290            | 10.16               | 12.00         | 93.02        |

|             | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.5GHz WLAN | 802.11a 6Mbps       | 100     | 5500            | 13.98               | 14.00         | 98.28        |
|             |                     | 116     | 5580            | 13.99               | 14.00         |              |
|             |                     | 124     | 5620            | 13.93               | 14.00         |              |
|             |                     | 132     | 5660            | 13.99               | 14.00         |              |
|             |                     | 144     | 5720            | 12.10               | 14.00         |              |
|             | 802.11n-HT20 MCS0   | 100     | 5500            | 13.83               | 14.00         | 98.16        |
|             |                     | 116     | 5580            | 14.00               | 14.00         |              |
|             |                     | 124     | 5620            | 13.72               | 14.00         |              |
|             |                     | 132     | 5660            | 13.79               | 14.00         |              |
|             |                     | 144     | 5720            | 13.69               | 14.00         |              |
|             | 802.11n-HT40 MCS0   | 102     | 5510            | 12.01               | 13.50         | 96.32        |
|             |                     | 110     | 5550            | 12.38               | 13.50         |              |
|             |                     | 126     | 5630            | 12.08               | 13.50         |              |
|             |                     | 134     | 5670            | 11.80               | 13.50         |              |
|             |                     | 142     | 5710            | 11.94               | 13.50         |              |
|             | 802.11ac-VHT20 MCS0 | 100     | 5500            | 12.55               | 14.00         | 97.79        |
|             |                     | 116     | 5580            | 12.54               | 14.00         |              |
|             |                     | 124     | 5620            | 12.26               | 14.00         |              |
|             |                     | 132     | 5660            | 12.35               | 14.00         |              |
|             |                     | 144     | 5720            | 12.46               | 14.00         |              |
|             | 802.11ac-VHT40 MCS0 | 102     | 5510            | 11.86               | 13.50         | 96.32        |
|             |                     | 110     | 5550            | 12.23               | 13.50         |              |
|             |                     | 126     | 5630            | 12.05               | 13.50         |              |
|             |                     | 134     | 5670            | 11.70               | 13.50         |              |
|             |                     | 142     | 5710            | 11.96               | 13.50         |              |
|             | 802.11ac-VHT80 MCS0 | 106     | 5530            | 10.34               | 12.00         | 93.02        |
|             |                     | 122     | 5610            | 10.00               | 12.00         |              |
|             |                     | 138     | 5690            | 10.19               | 12.00         |              |

|             | Mode                | Channel | Frequency (MHz) | Average power (dBm) | Tune-Up Limit | Duty Cycle % |
|-------------|---------------------|---------|-----------------|---------------------|---------------|--------------|
| 5.8GHz WLAN | 802.11a 6Mbps       | 149     | 5745            | 11.32               | 13.00         | 98.28        |
|             |                     | 157     | 5785            | 11.07               | 13.00         |              |
|             |                     | 165     | 5825            | 11.09               | 13.00         |              |
|             | 802.11n-HT20 MCS0   | 149     | 5745            | 11.16               | 13.00         | 98.16        |
|             |                     | 157     | 5785            | 11.00               | 13.00         |              |
|             |                     | 165     | 5825            | 11.01               | 13.00         |              |
|             | 802.11n-HT40 MCS0   | 151     | 5755            | 12.88               | 13.00         | 96.32        |
|             |                     | 159     | 5795            | 11.40               | 13.00         |              |
|             | 802.11ac-VHT20 MCS0 | 149     | 5745            | 12.13               | 13.00         | 97.79        |
|             |                     | 157     | 5785            | 11.78               | 13.00         |              |
|             |                     | 165     | 5825            | 11.94               | 13.00         |              |
|             | 802.11ac-VHT40 MCS0 | 151     | 5755            | 12.82               | 13.00         | 96.32        |
|             |                     | 159     | 5795            | 12.74               | 13.00         |              |
|             | 802.11ac-VHT80 MCS0 | 155     | 5775            | 10.19               | 12.00         | 93.02        |



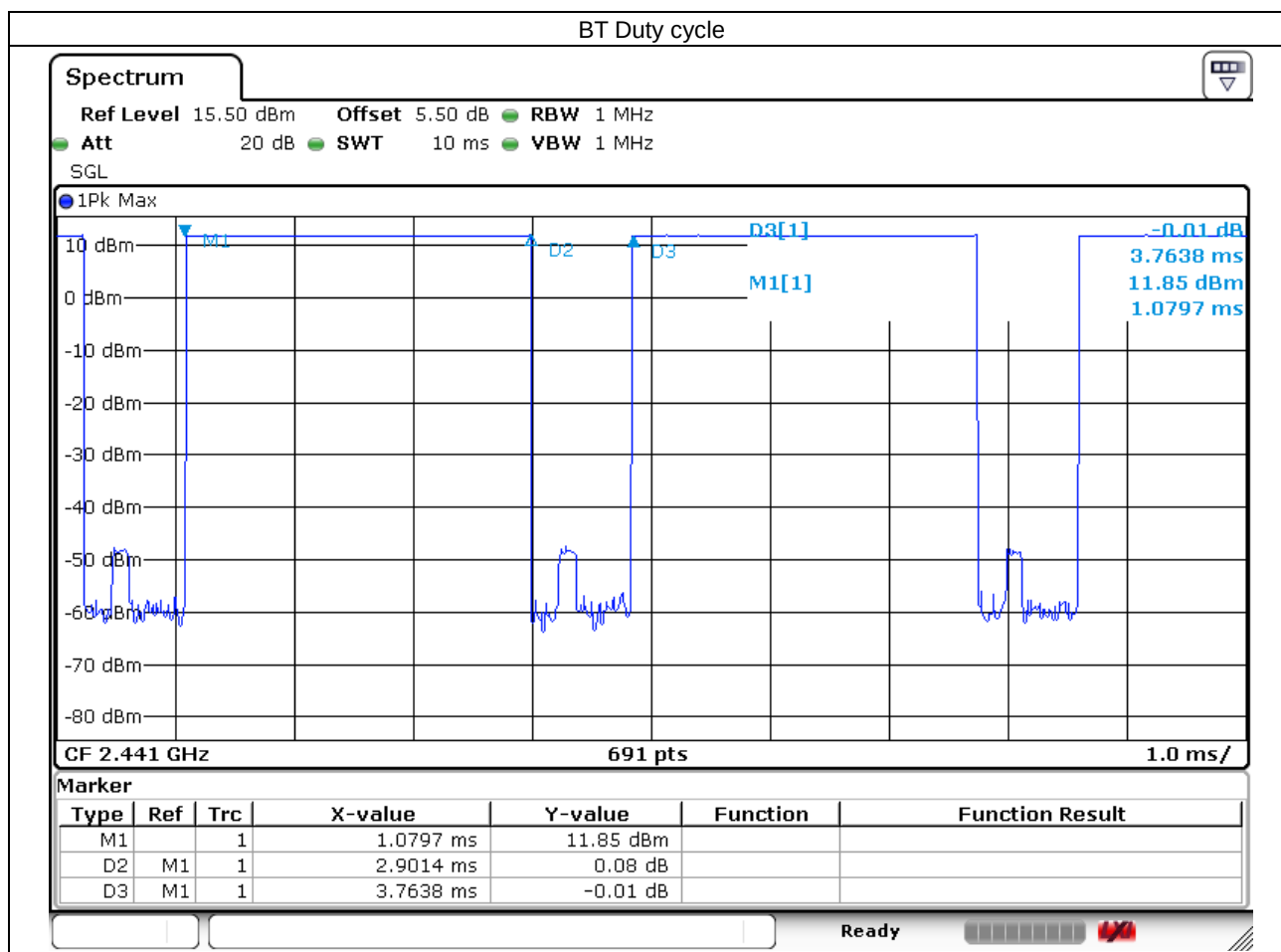
**<2.4GHz Bluetooth>**

| Mode          | Channel | Frequency (MHz) | Average power (dBm) |       |       |
|---------------|---------|-----------------|---------------------|-------|-------|
|               |         |                 | 1Mbps               | 2Mbps | 3Mbps |
| BR / EDR      | CH 00   | 2402            | 11.07               | 8.94  | 8.91  |
|               | CH 39   | 2441            | 12.01               | 10.29 | 10.21 |
|               | CH 78   | 2480            | 11.30               | 9.59  | 9.63  |
| Tune-up Limit |         |                 | 13.00               | 10.50 | 10.50 |

| Mode          | Channel | Frequency (MHz) | Average power (dBm) |
|---------------|---------|-----------------|---------------------|
|               |         |                 | 1Mbps               |
| LE            | CH 00   | 2402            | 1.53                |
|               | CH 19   | 2440            | 2.16                |
|               | CH 39   | 2480            | 1.44                |
| Tune-up Limit |         |                 | 2.50                |

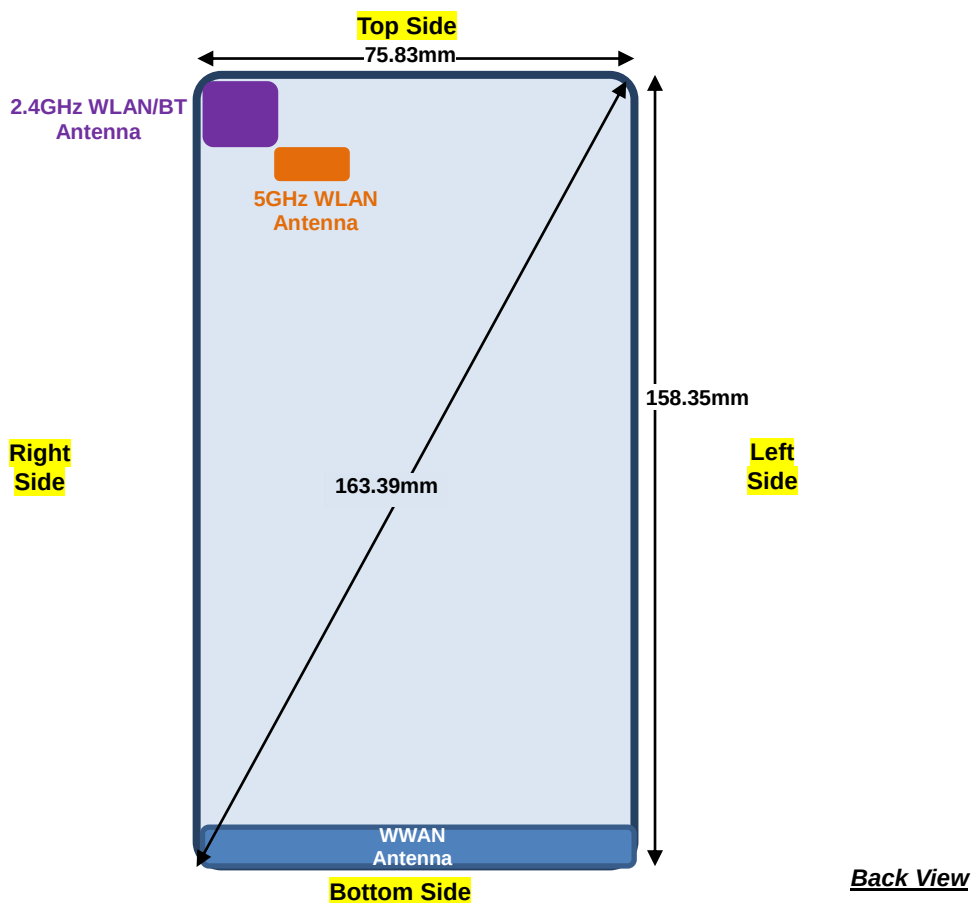
**General Note:**

- For 2.4GHz Bluetooth SAR testing was selected 1Mbps due to its highest average power and duty cycle is 77.6% considered in SAR testing, and the duty cycle would be scaled to theoretical 83.3% in reported SAR calculation.



### 13. Antenna Location

<Mobile Phone>



| Distance of the Antenna to the EUT surface/edge |        |        |          |             |            |           |
|-------------------------------------------------|--------|--------|----------|-------------|------------|-----------|
| Antennas                                        | Back   | Front  | Top Side | Bottom Side | Right Side | Left Side |
| WWAN                                            | ≤ 25mm | ≤ 25mm | >25mm    | ≤ 25mm      | ≤ 25mm     | ≤ 25mm    |
| 2.4GHz WLAN & BT                                | ≤ 25mm | ≤ 25mm | ≤ 25mm   | >25mm       | ≤ 25mm     | >25mm     |
| 5GHz WLAN                                       | ≤ 25mm | ≤ 25mm | ≤ 25mm   | >25mm       | ≤ 25mm     | >25mm     |

| Positions for SAR tests; Hotspot mode |      |       |          |             |            |           |
|---------------------------------------|------|-------|----------|-------------|------------|-----------|
| Antennas                              | Back | Front | Top Side | Bottom Side | Right Side | Left Side |
| WWAN                                  | Yes  | Yes   | No       | Yes         | Yes        | Yes       |
| 2.4GHz WLAN & BT                      | Yes  | Yes   | Yes      | No          | Yes        | No        |
| 5GHz WLAN                             | Yes  | Yes   | Yes      | No          | Yes        | No        |

**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

## 14. SAR Test Results

### 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 SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
  - c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)\*Tune-up Scaling Factor
  - d. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)\* Duty Cycle scaling factor \* Tune-up scaling factor
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. Per KDB648474 D04v01r03, when the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is  $> 1.2$  W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.
5. 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 bottom side SAR for WWAN transmitter scaled to maximum output power is higher than 1.2W/kg of GSM1900, WCDMA B2/B4/B5, LTE B2/B5/B7/B66 and 5.2GHz / 5.8GHz WLAN, therefore product specific SAR is necessary.
6. For 5.3GHz / 5.5GHz WLAN product specific SAR is necessary too, due to an overall diagonal dimension is  $> 16$ cm.
7. For front and back position at hotspot exposure condition was choose higher power level between hotspot power table and body-worn power table for SAR compliance.
8. Reduced power for different RF exposure conditions:
  - a. Body worn: The device employs proximity sensors that detect the presence of the user's body at the front or back faces of the device, when operating in near-body condition by end user, the device will reduced maximum output powers on the WCDMA B2 / B4 / B5 and LTE B2 / B4 / B7 / B66 and detail descriptions of the power reduction mechanism are included in the operational description.
  - b. Hotspot: When the mobile hotspot session is turn on by end user, the device will reduced output powers on the GSM1900, WCDMA B2 / B4 / B5 and LTE B2 / B4 / B7 / B66 and detail descriptions of the power reduction mechanism are included in the operational description.
  - c. Handheld: The device additionally employs proximity sensors that detect the presence of tissue near the currently active transmit antenna, the device will reduced output powers on the WCDMA B2 / B4, LTE B2 / B4 / B7 / B66 transmitter and detail descriptions of the power reduction mechanism are included in the operational description.

### GSM Note:

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS (2Tx slots) for GSM850/GSM1900 is considered as the primary mode.
2. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq \frac{1}{4}$  dB higher than the primary mode, SAR measurement is not required for the secondary mode.

**UMTS Note:**

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is  $\leq \frac{1}{4}$  dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is  $\leq 1.2$  W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than  $\frac{1}{4}$  dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

**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 B12 / 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 / 17 SAR test was covered by Band 66 / 12; 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.

**WLAN Note:**

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is  $\leq 1.2$  W/kg.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is  $\leq 1.2$  W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is  $> 0.4$  W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is  $\leq 0.8$  W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is  $> 0.8$  W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is  $\leq 1.2$  W/kg or all required channels are tested.
5. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

### 14.1 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 (2 Tx slots) | Right Cheek   | 0mm      | 128 | 824.2       | 31.02               | 31.50               | 1.117                  | -0.01            | 0.097                  | 0.108                  |
|          | GSM850  | GPRS (2 Tx slots) | Right Tilted  | 0mm      | 128 | 824.2       | 31.02               | 31.50               | 1.117                  | 0.14             | 0.048                  | 0.054                  |
|          | GSM850  | GPRS (2 Tx slots) | Left Cheek    | 0mm      | 128 | 824.2       | 31.02               | 31.50               | 1.117                  | -0.06            | 0.077                  | 0.086                  |
|          | GSM850  | GPRS (2 Tx slots) | Left Tilted   | 0mm      | 128 | 824.2       | 31.02               | 31.50               | 1.117                  | 0.04             | 0.048                  | 0.054                  |
|          | GSM1900 | GPRS (2 Tx slots) | Right Cheek   | 0mm      | 512 | 1850.2      | 28.05               | 28.50               | 1.109                  | 0.05             | 0.069                  | 0.077                  |
|          | GSM1900 | GPRS (2 Tx slots) | Right Tilted  | 0mm      | 512 | 1850.2      | 28.05               | 28.50               | 1.109                  | 0.12             | 0.038                  | 0.042                  |
| 02       | GSM1900 | GPRS (2 Tx slots) | Left Cheek    | 0mm      | 512 | 1850.2      | 28.05               | 28.50               | 1.109                  | 0.05             | 0.151                  | 0.167                  |
|          | GSM1900 | GPRS (2 Tx slots) | Left Tilted   | 0mm      | 512 | 1850.2      | 28.05               | 28.50               | 1.109                  | 0.01             | 0.020                  | 0.022                  |

#### <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) |
|----------|----------|--------------|---------------|----------|------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
|          | WCDMA II | RMC 12.2Kbps | Right Cheek   | 0mm      | 9262 | 1852.4      | 22.78               | 24.00               | 1.324                  | 0.04             | 0.167                  | 0.221                  |
|          | WCDMA II | RMC 12.2Kbps | Right Tilted  | 0mm      | 9262 | 1852.4      | 22.78               | 24.00               | 1.324                  | 0.06             | 0.132                  | 0.175                  |
| 03       | WCDMA II | RMC 12.2Kbps | Left Cheek    | 0mm      | 9262 | 1852.4      | 22.78               | 24.00               | 1.324                  | 0.09             | 0.260                  | 0.344                  |
|          | WCDMA II | RMC 12.2Kbps | Left Tilted   | 0mm      | 9262 | 1852.4      | 22.78               | 24.00               | 1.324                  | 0                | 0.085                  | 0.113                  |
|          | WCDMA IV | RMC 12.2Kbps | Right Cheek   | 0mm      | 1413 | 1732.6      | 22.95               | 24.00               | 1.274                  | 0.01             | 0.114                  | 0.145                  |
|          | WCDMA IV | RMC 12.2Kbps | Right Tilted  | 0mm      | 1413 | 1732.6      | 22.95               | 24.00               | 1.274                  | -0.01            | 0.071                  | 0.090                  |
| 04       | WCDMA IV | RMC 12.2Kbps | Left Cheek    | 0mm      | 1413 | 1732.6      | 22.95               | 24.00               | 1.274                  | 0.08             | 0.196                  | 0.250                  |
|          | WCDMA IV | RMC 12.2Kbps | Left Tilted   | 0mm      | 1413 | 1732.6      | 22.95               | 24.00               | 1.274                  | 0.17             | 0.067                  | 0.085                  |
| 05       | WCDMA V  | RMC 12.2Kbps | Right Cheek   | 0mm      | 4182 | 836.4       | 22.81               | 24.00               | 1.315                  | -0.06            | 0.238                  | 0.313                  |
|          | WCDMA V  | RMC 12.2Kbps | Right Tilted  | 0mm      | 4182 | 836.4       | 22.81               | 24.00               | 1.315                  | 0                | 0.118                  | 0.155                  |
|          | WCDMA V  | RMC 12.2Kbps | Left Cheek    | 0mm      | 4182 | 836.4       | 22.81               | 24.00               | 1.315                  | -0.01            | 0.192                  | 0.253                  |
|          | WCDMA V  | RMC 12.2Kbps | Left Tilted   | 0mm      | 4182 | 836.4       | 22.81               | 24.00               | 1.315                  | 0.02             | 0.121                  | 0.159                  |

**<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) |
|----------|-------------|----------|------------|---------|-----------|---------------|----------|--------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 06       | LTE Band 2  | 20M      | QPSK       | 1       | 0         | Right Cheek   | 0mm      | 18900  | 1880        | 22.90               | 24.00               | 1.288                  | -0.15            | 0.155                  | 0.200                  |
|          | LTE Band 2  | 20M      | QPSK       | 50      | 0         | Right Cheek   | 0mm      | 19100  | 1900        | 21.84               | 23.00               | 1.306                  | 0.07             | 0.091                  | 0.119                  |
|          | LTE Band 2  | 20M      | QPSK       | 1       | 0         | Right Tilted  | 0mm      | 18900  | 1880        | 22.90               | 24.00               | 1.288                  | 0.04             | 0.136                  | 0.175                  |
|          | LTE Band 2  | 20M      | QPSK       | 50      | 0         | Right Tilted  | 0mm      | 19100  | 1900        | 21.84               | 23.00               | 1.306                  | 0.11             | 0.100                  | 0.131                  |
|          | LTE Band 2  | 20M      | QPSK       | 1       | 0         | Left Cheek    | 0mm      | 18900  | 1880        | 22.90               | 24.00               | 1.288                  | 0.09             | 0.134                  | 0.173                  |
|          | LTE Band 2  | 20M      | QPSK       | 50      | 0         | Left Cheek    | 0mm      | 19100  | 1900        | 21.84               | 23.00               | 1.306                  | 0.15             | 0.078                  | 0.102                  |
|          | LTE Band 2  | 20M      | QPSK       | 1       | 0         | Left Tilted   | 0mm      | 18900  | 1880        | 22.90               | 24.00               | 1.288                  | 0.08             | 0.074                  | 0.095                  |
|          | LTE Band 2  | 20M      | QPSK       | 50      | 0         | Left Tilted   | 0mm      | 19100  | 1900        | 21.84               | 23.00               | 1.306                  | -0.04            | 0.049                  | 0.064                  |
| 07       | LTE Band 5  | 10M      | QPSK       | 1       | 25        | Right Cheek   | 0mm      | 20525  | 836.5       | 22.87               | 24.00               | 1.297                  | 0.02             | 0.216                  | 0.280                  |
|          | LTE Band 5  | 10M      | QPSK       | 25      | 12        | Right Cheek   | 0mm      | 20525  | 836.5       | 21.73               | 23.00               | 1.340                  | 0                | 0.118                  | 0.158                  |
|          | LTE Band 5  | 10M      | QPSK       | 1       | 25        | Right Tilted  | 0mm      | 20525  | 836.5       | 22.87               | 24.00               | 1.297                  | 0.03             | 0.098                  | 0.127                  |
|          | LTE Band 5  | 10M      | QPSK       | 25      | 12        | Right Tilted  | 0mm      | 20525  | 836.5       | 21.73               | 23.00               | 1.340                  | 0.02             | 0.053                  | 0.071                  |
|          | LTE Band 5  | 10M      | QPSK       | 1       | 25        | Left Cheek    | 0mm      | 20525  | 836.5       | 22.87               | 24.00               | 1.297                  | -0.01            | 0.173                  | 0.224                  |
|          | LTE Band 5  | 10M      | QPSK       | 25      | 12        | Left Cheek    | 0mm      | 20525  | 836.5       | 21.73               | 23.00               | 1.340                  | 0.05             | 0.092                  | 0.124                  |
|          | LTE Band 5  | 10M      | QPSK       | 1       | 25        | Left Tilted   | 0mm      | 20525  | 836.5       | 22.87               | 24.00               | 1.297                  | 0                | 0.110                  | 0.143                  |
|          | LTE Band 5  | 10M      | QPSK       | 25      | 12        | Left Tilted   | 0mm      | 20525  | 836.5       | 21.73               | 23.00               | 1.340                  | 0.04             | 0.059                  | 0.079                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Right Cheek   | 0mm      | 21350  | 2560        | 23.16               | 24.00               | 1.213                  | 0.02             | 0.350                  | 0.425                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Right Cheek   | 0mm      | 21350  | 2560        | 22.14               | 23.00               | 1.219                  | 0.1              | 0.227                  | 0.277                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Right Tilted  | 0mm      | 21350  | 2560        | 23.16               | 24.00               | 1.213                  | -0.09            | 0.361                  | 0.438                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Right Tilted  | 0mm      | 21350  | 2560        | 22.14               | 23.00               | 1.219                  | -0.04            | 0.232                  | 0.283                  |
| 08       | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Left Cheek    | 0mm      | 21350  | 2560        | 23.16               | 24.00               | 1.213                  | -0.04            | 0.446                  | 0.541                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Left Cheek    | 0mm      | 21350  | 2560        | 22.14               | 23.00               | 1.219                  | -0.08            | 0.281                  | 0.343                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Left Tilted   | 0mm      | 21350  | 2560        | 23.16               | 24.00               | 1.213                  | -0.06            | 0.179                  | 0.217                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Left Tilted   | 0mm      | 21350  | 2560        | 22.14               | 23.00               | 1.219                  | 0.06             | 0.112                  | 0.137                  |
|          | LTE Band 12 | 10M      | QPSK       | 1       | 25        | Right Cheek   | 0mm      | 23095  | 707.5       | 22.58               | 24.00               | 1.387                  | 0.05             | 0.052                  | 0.072                  |
|          | LTE Band 12 | 10M      | QPSK       | 25      | 25        | Right Cheek   | 0mm      | 23095  | 707.5       | 21.62               | 23.00               | 1.374                  | 0.02             | 0.028                  | 0.038                  |
|          | LTE Band 12 | 10M      | QPSK       | 1       | 25        | Right Tilted  | 0mm      | 23095  | 707.5       | 22.58               | 24.00               | 1.387                  | 0.03             | 0.028                  | 0.039                  |
|          | LTE Band 12 | 10M      | QPSK       | 25      | 25        | Right Tilted  | 0mm      | 23095  | 707.5       | 21.62               | 23.00               | 1.374                  | 0.11             | 0.016                  | 0.022                  |
| 09       | LTE Band 12 | 10M      | QPSK       | 1       | 25        | Left Cheek    | 0mm      | 23095  | 707.5       | 22.58               | 24.00               | 1.387                  | 0.01             | 0.057                  | 0.079                  |
|          | LTE Band 12 | 10M      | QPSK       | 25      | 25        | Left Cheek    | 0mm      | 23095  | 707.5       | 21.62               | 23.00               | 1.374                  | 0.14             | 0.031                  | 0.043                  |
|          | LTE Band 12 | 10M      | QPSK       | 1       | 25        | Left Tilted   | 0mm      | 23095  | 707.5       | 22.58               | 24.00               | 1.387                  | -0.12            | 0.034                  | 0.047                  |
|          | LTE Band 12 | 10M      | QPSK       | 25      | 25        | Left Tilted   | 0mm      | 23095  | 707.5       | 21.62               | 23.00               | 1.374                  | 0.04             | 0.019                  | 0.026                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Right Cheek   | 0mm      | 132572 | 1770        | 22.99               | 24.00               | 1.262                  | 0.07             | 0.093                  | 0.117                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 24        | Right Cheek   | 0mm      | 132572 | 1770        | 21.99               | 23.00               | 1.262                  | 0.14             | 0.061                  | 0.077                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Right Tilted  | 0mm      | 132572 | 1770        | 22.99               | 24.00               | 1.262                  | -0.01            | 0.071                  | 0.090                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 24        | Right Tilted  | 0mm      | 132572 | 1770        | 21.99               | 23.00               | 1.262                  | 0.15             | 0.045                  | 0.057                  |
| 10       | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Left Cheek    | 0mm      | 132572 | 1770        | 22.99               | 24.00               | 1.262                  | 0.03             | 0.212                  | 0.268                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 24        | Left Cheek    | 0mm      | 132572 | 1770        | 21.99               | 23.00               | 1.262                  | 0.11             | 0.132                  | 0.167                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Left Tilted   | 0mm      | 132572 | 1770        | 22.99               | 24.00               | 1.262                  | 0.18             | 0.079                  | 0.100                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 24        | Left Tilted   | 0mm      | 132572 | 1770        | 21.99               | 23.00               | 1.262                  | 0.18             | 0.048                  | 0.061                  |

**<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) |
|----------|------------|---------------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
|          | WLAN2.4GHz | 802.11b 1Mbps | Right Cheek   | 0mm      | 1   | 2412        | 17.55               | 19.00               | 1.396                  | 100          | 1.000                     | -0.05            | 0.373                  | 0.521                  |
|          | WLAN2.4GHz | 802.11b 1Mbps | Right Tilted  | 0mm      | 1   | 2412        | 17.55               | 19.00               | 1.396                  | 100          | 1.000                     | 0.07             | 0.470                  | 0.656                  |
| 11       | WLAN2.4GHz | 802.11b 1Mbps | Left Cheek    | 0mm      | 1   | 2412        | 17.55               | 19.00               | 1.396                  | 100          | 1.000                     | 0.07             | 0.935                  | 1.306                  |
|          | WLAN2.4GHz | 802.11b 1Mbps | Left Cheek    | 0mm      | 6   | 2437        | 17.10               | 19.00               | 1.549                  | 100          | 1.000                     | -0.03            | 0.733                  | 1.135                  |
|          | WLAN2.4GHz | 802.11b 1Mbps | Left Cheek    | 0mm      | 11  | 2462        | 17.41               | 19.00               | 1.442                  | 100          | 1.000                     | 0                | 0.711                  | 1.025                  |
|          | WLAN2.4GHz | 802.11b 1Mbps | Left Tilted   | 0mm      | 1   | 2412        | 17.55               | 19.00               | 1.396                  | 100          | 1.000                     | 0.09             | 0.648                  | 0.905                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Right Cheek   | 0mm      | 64  | 5320        | 15.50               | 17.00               | 1.413                  | 98.28        | 1.018                     | -0.17            | 0.108                  | 0.155                  |
| 12       | WLAN5GHz   | 802.11a 6Mbps | Right Tilted  | 0mm      | 64  | 5320        | 15.50               | 17.00               | 1.413                  | 98.28        | 1.018                     | -0.11            | 0.132                  | 0.190                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Left Cheek    | 0mm      | 64  | 5320        | 15.50               | 17.00               | 1.413                  | 98.28        | 1.018                     | -0.02            | 0.093                  | 0.134                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Left Tilted   | 0mm      | 64  | 5320        | 15.50               | 17.00               | 1.413                  | 98.28        | 1.018                     | -0.15            | 0.115                  | 0.165                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Right Tilted  | 0mm      | 64  | 5320        | 15.50               | 17.00               | 1.413                  | 98.28        | 1.018                     | -0.09            | 0.126                  | 0.181                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Right Cheek   | 0mm      | 100 | 5500        | 15.31               | 16.50               | 1.317                  | 98.28        | 1.018                     | -0.12            | 0.121                  | 0.162                  |
| 13       | WLAN5GHz   | 802.11a 6Mbps | Right Tilted  | 0mm      | 100 | 5500        | 15.31               | 16.50               | 1.317                  | 98.28        | 1.018                     | -0.12            | 0.129                  | 0.173                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Left Cheek    | 0mm      | 100 | 5500        | 15.31               | 16.50               | 1.317                  | 98.28        | 1.018                     | -0.06            | 0.104                  | 0.139                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Left Tilted   | 0mm      | 100 | 5500        | 15.31               | 16.50               | 1.317                  | 98.28        | 1.018                     | -0.17            | 0.128                  | 0.172                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Right Tilted  | 0mm      | 100 | 5500        | 15.31               | 16.50               | 1.317                  | 98.28        | 1.018                     | -0.14            | 0.115                  | 0.154                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Right Cheek   | 0mm      | 165 | 5825        | 14.80               | 16.00               | 1.320                  | 98.28        | 1.018                     | -0.07            | 0.130                  | 0.175                  |
| 14       | WLAN5GHz   | 802.11a 6Mbps | Right Tilted  | 0mm      | 165 | 5825        | 14.80               | 16.00               | 1.320                  | 98.28        | 1.018                     | 0                | 0.186                  | 0.250                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Left Cheek    | 0mm      | 165 | 5825        | 14.80               | 16.00               | 1.320                  | 98.28        | 1.018                     | -0.15            | 0.112                  | 0.150                  |
|          | WLAN5GHz   | 802.11a 6Mbps | Left Tilted   | 0mm      | 165 | 5825        | 14.80               | 16.00               | 1.320                  | 98.28        | 1.018                     | -0.18            | 0.139                  | 0.187                  |

**<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) |
|----------|-----------|-------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
|          | Bluetooth | 1Mbps | Right Cheek   | 0mm      | 39  | 2441        | 12.01               | 13                  | 1.256                  | 77.6         | 1.073                     | 0.07             | 0.060                  | 0.081                  |
|          | Bluetooth | 1Mbps | Right Tilted  | 0mm      | 39  | 2441        | 12.01               | 13                  | 1.256                  | 77.6         | 1.073                     | -0.12            | 0.070                  | 0.094                  |
| 15       | Bluetooth | 1Mbps | Left Cheek    | 0mm      | 39  | 2441        | 12.01               | 13                  | 1.256                  | 77.6         | 1.073                     | 0.13             | 0.112                  | 0.151                  |
|          | Bluetooth | 1Mbps | Left Tilted   | 0mm      | 39  | 2441        | 12.01               | 13                  | 1.256                  | 77.6         | 1.073                     | 0.13             | 0.082                  | 0.111                  |

## 14.2 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) |
|----------|---------|-------------------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
|          | GSM850  | GPRS (2 Tx slots) | Front         | 5mm      | 128 | 824.2       | 31.02               | 31.50               | 1.117                  | -0.04            | 0.503                  | 0.562                  |
| 16       | GSM850  | GPRS (2 Tx slots) | Back          | 5mm      | 128 | 824.2       | 31.02               | 31.50               | 1.117                  | -0.09            | 0.620                  | 0.692                  |
|          | GSM850  | GPRS (2 Tx slots) | Left Side     | 5mm      | 128 | 824.2       | 31.02               | 31.50               | 1.117                  | -0.02            | 0.095                  | 0.106                  |
|          | GSM850  | GPRS (2 Tx slots) | Right Side    | 5mm      | 128 | 824.2       | 31.02               | 31.50               | 1.117                  | -0.01            | 0.281                  | 0.314                  |
|          | GSM850  | GPRS (2 Tx slots) | Bottom Side   | 5mm      | 128 | 824.2       | 31.02               | 31.50               | 1.117                  | -0.08            | 0.599                  | 0.669                  |
|          | GSM1900 | GPRS (2 Tx slots) | Front         | 5mm      | 512 | 1850.2      | 28.05               | 28.50               | 1.109                  | -0.05            | 0.934                  | 1.036                  |
|          | GSM1900 | GPRS (2 Tx slots) | Front         | 5mm      | 661 | 1880        | 27.91               | 28.50               | 1.146                  | -0.06            | 0.783                  | 0.897                  |
|          | GSM1900 | GPRS (2 Tx slots) | Front         | 5mm      | 810 | 1909.8      | 27.88               | 28.50               | 1.153                  | -0.15            | 0.814                  | 0.939                  |
|          | GSM1900 | GPRS (2 Tx slots) | Back          | 5mm      | 512 | 1850.2      | 28.05               | 28.50               | 1.109                  | 0.01             | 1.160                  | 1.287                  |
|          | GSM1900 | GPRS (2 Tx slots) | Back          | 5mm      | 661 | 1880        | 27.91               | 28.50               | 1.146                  | -0.07            | 1.110                  | 1.272                  |
|          | GSM1900 | GPRS (2 Tx slots) | Back          | 5mm      | 810 | 1909.8      | 27.88               | 28.50               | 1.153                  | -0.14            | 1.050                  | 1.211                  |
|          | GSM1900 | GPRS (2 Tx slots) | Left Side     | 5mm      | 512 | 1850.2      | 25.49               | 26.00               | 1.125                  | -0.14            | 0.095                  | 0.107                  |
|          | GSM1900 | GPRS (2 Tx slots) | Right Side    | 5mm      | 512 | 1850.2      | 25.49               | 26.00               | 1.125                  | -0.11            | 0.453                  | 0.509                  |
| 17       | GSM1900 | GPRS (2 Tx slots) | Bottom Side   | 5mm      | 512 | 1850.2      | 25.49               | 26.00               | 1.125                  | 0.04             | 1.190                  | 1.338                  |
|          | GSM1900 | GPRS (2 Tx slots) | Bottom Side   | 5mm      | 661 | 1880        | 25.18               | 26.00               | 1.208                  | -0.01            | 0.942                  | 1.138                  |
|          | GSM1900 | GPRS (2 Tx slots) | Bottom Side   | 5mm      | 810 | 1909.8      | 25.13               | 26.00               | 1.222                  | -0.03            | 0.881                  | 1.076                  |

### <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) |
|----------|----------|--------------|---------------|----------|------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
|          | WCDMA II | RMC 12.2Kbps | Front         | 5mm      | 9262 | 1852.4      | 20.33               | 21.00               | 1.167                  | 0.03             | 0.869                  | 1.014                  |
|          | WCDMA II | RMC 12.2Kbps | Front         | 5mm      | 9400 | 1880        | 20.25               | 21.00               | 1.189                  | 0.01             | 0.845                  | 1.004                  |
|          | WCDMA II | RMC 12.2Kbps | Front         | 5mm      | 9538 | 1907.6      | 20.23               | 21.00               | 1.194                  | 0.03             | 0.836                  | 0.998                  |
|          | WCDMA II | RMC 12.2Kbps | Back          | 5mm      | 9262 | 1852.4      | 20.33               | 21.00               | 1.167                  | -0.02            | 1.030                  | 1.202                  |
|          | WCDMA II | RMC 12.2Kbps | Back          | 5mm      | 9400 | 1880        | 20.25               | 21.00               | 1.189                  | 0.01             | 1.070                  | 1.272                  |
|          | WCDMA II | RMC 12.2Kbps | Back          | 5mm      | 9538 | 1907.6      | 20.23               | 21.00               | 1.194                  | -0.01            | 1.090                  | 1.301                  |
|          | WCDMA II | RMC 12.2Kbps | Left Side     | 5mm      | 9262 | 1852.4      | 17.55               | 18.00               | 1.109                  | -0.06            | 0.063                  | 0.070                  |
|          | WCDMA II | RMC 12.2Kbps | Right Side    | 5mm      | 9262 | 1852.4      | 17.55               | 18.00               | 1.109                  | -0.09            | 0.425                  | 0.471                  |
| 18       | WCDMA II | RMC 12.2Kbps | Bottom Side   | 5mm      | 9262 | 1852.4      | 17.55               | 18.00               | 1.109                  | -0.05            | 1.190                  | 1.320                  |
|          | WCDMA II | RMC 12.2Kbps | Bottom Side   | 5mm      | 9400 | 1880        | 17.36               | 18.00               | 1.159                  | -0.04            | 1.080                  | 1.251                  |
|          | WCDMA II | RMC 12.2Kbps | Bottom Side   | 5mm      | 9538 | 1907.6      | 17.38               | 18.00               | 1.153                  | -0.07            | 0.947                  | 1.092                  |
|          | WCDMA IV | RMC 12.2Kbps | Front         | 5mm      | 1413 | 1732.6      | 19.31               | 20.00               | 1.172                  | 0.04             | 0.980                  | 1.149                  |
|          | WCDMA IV | RMC 12.2Kbps | Front         | 5mm      | 1312 | 1712.4      | 19.30               | 20.00               | 1.175                  | 0.03             | 0.902                  | 1.060                  |
|          | WCDMA IV | RMC 12.2Kbps | Front         | 5mm      | 1513 | 1752.6      | 19.29               | 20.00               | 1.178                  | 0                | 0.995                  | 1.172                  |
|          | WCDMA IV | RMC 12.2Kbps | Back          | 5mm      | 1413 | 1732.6      | 19.31               | 20.00               | 1.172                  | 0.04             | 1.120                  | 1.313                  |
|          | WCDMA IV | RMC 12.2Kbps | Back          | 5mm      | 1312 | 1712.4      | 19.30               | 20.00               | 1.175                  | -0.01            | 1.010                  | 1.187                  |
|          | WCDMA IV | RMC 12.2Kbps | Back          | 5mm      | 1513 | 1752.6      | 19.29               | 20.00               | 1.178                  | -0.03            | 1.140                  | 1.342                  |
|          | WCDMA IV | RMC 12.2Kbps | Left Side     | 5mm      | 1413 | 1732.6      | 17.28               | 18.00               | 1.180                  | 0.06             | 0.039                  | 0.046                  |
|          | WCDMA IV | RMC 12.2Kbps | Right Side    | 5mm      | 1413 | 1732.6      | 17.28               | 18.00               | 1.180                  | -0.01            | 0.249                  | 0.294                  |
|          | WCDMA IV | RMC 12.2Kbps | Bottom Side   | 5mm      | 1413 | 1732.6      | 17.28               | 18.00               | 1.180                  | -0.04            | 1.100                  | 1.298                  |
|          | WCDMA IV | RMC 12.2Kbps | Bottom Side   | 5mm      | 1312 | 1712.4      | 17.26               | 18.00               | 1.186                  | -0.06            | 1.030                  | 1.221                  |
| 19       | WCDMA IV | RMC 12.2Kbps | Bottom Side   | 5mm      | 1513 | 1752.6      | 17.22               | 18.00               | 1.197                  | -0.02            | 1.150                  | 1.376                  |

| 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) |
|----------|---------|--------------|---------------|----------|------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
|          | WCDMA V | RMC 12.2Kbps | Front         | 5mm      | 4132 | 826.4       | 22.27               | 23.00               | 1.183                  | -0.02            | 0.813                  | 0.962                  |
|          | WCDMA V | RMC 12.2Kbps | Front         | 5mm      | 4182 | 836.4       | 22.15               | 23.00               | 1.216                  | -0.06            | 0.929                  | 1.130                  |
|          | WCDMA V | RMC 12.2Kbps | Front         | 5mm      | 4233 | 846.6       | 22.03               | 23.00               | 1.250                  | 0                | 0.951                  | 1.189                  |
|          | WCDMA V | RMC 12.2Kbps | Back          | 5mm      | 4132 | 826.4       | 22.27               | 23.00               | 1.183                  | -0.02            | 0.893                  | 1.056                  |
|          | WCDMA V | RMC 12.2Kbps | Back          | 5mm      | 4182 | 836.4       | 22.15               | 23.00               | 1.216                  | -0.04            | 1.000                  | 1.216                  |
| 20       | WCDMA V | RMC 12.2Kbps | Back          | 5mm      | 4233 | 846.6       | 22.03               | 23.00               | 1.250                  | -0.03            | 1.090                  | 1.363                  |
|          | WCDMA V | RMC 12.2Kbps | Left Side     | 5mm      | 4132 | 826.4       | 22.27               | 23.00               | 1.183                  | 0.01             | 0.119                  | 0.141                  |
|          | WCDMA V | RMC 12.2Kbps | Right Side    | 5mm      | 4132 | 826.4       | 22.27               | 23.00               | 1.183                  | 0                | 0.385                  | 0.455                  |
|          | WCDMA V | RMC 12.2Kbps | Bottom Side   | 5mm      | 4132 | 826.4       | 22.27               | 23.00               | 1.183                  | -0.04            | 0.687                  | 0.813                  |
|          | WCDMA V | RMC 12.2Kbps | Bottom Side   | 5mm      | 4182 | 836.4       | 22.15               | 23.00               | 1.216                  | -0.01            | 0.779                  | 0.947                  |
|          | WCDMA V | RMC 12.2Kbps | Bottom Side   | 5mm      | 4233 | 846.6       | 22.03               | 23.00               | 1.250                  | -0.03            | 0.844                  | 1.055                  |

**<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 | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 18700 | 1860        | 20.87               | 21.50               | 1.156                  | 0.05             | 0.797                  | 0.921                  |
|          | LTE Band 2 | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 18900 | 1880        | 20.79               | 21.50               | 1.178                  | -0.02            | 0.815                  | 0.960                  |
|          | LTE Band 2 | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 19100 | 1900        | 20.85               | 21.50               | 1.161                  | 0                | 0.823                  | 0.956                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 18700 | 1860        | 20.77               | 21.50               | 1.183                  | -0.01            | 0.841                  | 0.995                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 18900 | 1880        | 20.71               | 21.50               | 1.199                  | 0.01             | 0.823                  | 0.987                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 19100 | 1900        | 20.75               | 21.50               | 1.189                  | 0                | 0.844                  | 1.003                  |
|          | LTE Band 2 | 20M      | QPSK       | 100     | 0         | Front         | 5mm      | 18700 | 1860        | 20.74               | 21.50               | 1.191                  | 0.01             | 0.861                  | 1.026                  |
|          | LTE Band 2 | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 18700 | 1860        | 20.87               | 21.50               | 1.156                  | 0.11             | 1.060                  | 1.225                  |
|          | LTE Band 2 | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 18900 | 1880        | 20.79               | 21.50               | 1.178                  | -0.02            | 1.090                  | 1.284                  |
|          | LTE Band 2 | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 19100 | 1900        | 20.85               | 21.50               | 1.161                  | 0.01             | 1.110                  | 1.289                  |
| 21       | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 18700 | 1860        | 20.77               | 21.50               | 1.183                  | -0.04            | 1.130                  | 1.337                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 18900 | 1880        | 20.71               | 21.50               | 1.199                  | 0                | 1.080                  | 1.295                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 19100 | 1900        | 20.75               | 21.50               | 1.189                  | -0.04            | 1.120                  | 1.331                  |
|          | LTE Band 2 | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | 18700 | 1860        | 20.74               | 21.50               | 1.191                  | 0.07             | 1.090                  | 1.298                  |
|          | LTE Band 2 | 20M      | QPSK       | 1       | 0         | Left Side     | 5mm      | 18700 | 1860        | 18.22               | 18.50               | 1.067                  | -0.01            | 0.064                  | 0.068                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Left Side     | 5mm      | 18700 | 1860        | 18.16               | 18.50               | 1.081                  | 0.08             | 0.051                  | 0.055                  |
|          | LTE Band 2 | 20M      | QPSK       | 1       | 0         | Right Side    | 5mm      | 18700 | 1860        | 18.22               | 18.50               | 1.067                  | -0.13            | 0.428                  | 0.457                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Right Side    | 5mm      | 18700 | 1860        | 18.16               | 18.50               | 1.081                  | 0.14             | 0.419                  | 0.453                  |
|          | LTE Band 2 | 20M      | QPSK       | 1       | 0         | Bottom Side   | 5mm      | 18700 | 1860        | 18.22               | 18.50               | 1.067                  | -0.04            | 1.110                  | 1.184                  |
|          | LTE Band 2 | 20M      | QPSK       | 1       | 0         | Bottom Side   | 5mm      | 18900 | 1880        | 18.17               | 18.50               | 1.079                  | -0.02            | 1.100                  | 1.187                  |
|          | LTE Band 2 | 20M      | QPSK       | 1       | 0         | Bottom Side   | 5mm      | 19100 | 1900        | 18.16               | 18.50               | 1.081                  | -0.05            | 1.020                  | 1.103                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Bottom Side   | 5mm      | 18700 | 1860        | 18.16               | 18.50               | 1.081                  | -0.05            | 1.130                  | 1.222                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Bottom Side   | 5mm      | 18900 | 1880        | 18.12               | 18.50               | 1.091                  | -0.04            | 1.100                  | 1.201                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Bottom Side   | 5mm      | 19100 | 1900        | 18.13               | 18.50               | 1.089                  | -0.07            | 1.030                  | 1.122                  |
|          | LTE Band 2 | 20M      | QPSK       | 100     | 0         | Bottom Side   | 5mm      | 18700 | 1860        | 18.15               | 18.50               | 1.084                  | -0.06            | 1.130                  | 1.225                  |



# FCC SAR TEST REPORT

Report No. : FA962518

| 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) |
|----------|-------------|----------|------------|---------|-----------|---------------|----------|-------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| 22       | LTE Band 5  | 10M      | QPSK       | 1       | 25        | Front         | 5mm      | 20525 | 836.5       | 22.87               | 24.00               | 1.297                  | 0                | 0.828                  | 1.074                  |
|          | LTE Band 5  | 10M      | QPSK       | 25      | 12        | Front         | 5mm      | 20525 | 836.5       | 21.73               | 23.00               | 1.340                  | -0.02            | 0.488                  | 0.654                  |
|          | LTE Band 5  | 10M      | QPSK       | 50      | 0         | Front         | 5mm      | 20525 | 836.5       | 21.68               | 23.00               | 1.355                  | -0.02            | 0.473                  | 0.641                  |
|          | LTE Band 5  | 10M      | QPSK       | 1       | 25        | Back          | 5mm      | 20525 | 836.5       | 22.87               | 24.00               | 1.297                  | -0.01            | 1.040                  | 1.349                  |
|          | LTE Band 5  | 10M      | QPSK       | 25      | 12        | Back          | 5mm      | 20525 | 836.5       | 21.73               | 23.00               | 1.340                  | -0.02            | 0.850                  | 1.139                  |
|          | LTE Band 5  | 10M      | QPSK       | 50      | 0         | Back          | 5mm      | 20525 | 836.5       | 21.68               | 23.00               | 1.355                  | 0.07             | 0.820                  | 1.111                  |
|          | LTE Band 5  | 10M      | QPSK       | 1       | 25        | Left Side     | 5mm      | 20525 | 836.5       | 22.87               | 24.00               | 1.297                  | 0.01             | 0.073                  | 0.095                  |
|          | LTE Band 5  | 10M      | QPSK       | 25      | 12        | Left Side     | 5mm      | 20525 | 836.5       | 21.73               | 23.00               | 1.340                  | 0                | 0.068                  | 0.091                  |
|          | LTE Band 5  | 10M      | QPSK       | 1       | 25        | Right Side    | 5mm      | 20525 | 836.5       | 22.87               | 24.00               | 1.297                  | 0                | 0.234                  | 0.304                  |
|          | LTE Band 5  | 10M      | QPSK       | 25      | 12        | Right Side    | 5mm      | 20525 | 836.5       | 21.73               | 23.00               | 1.340                  | -0.01            | 0.217                  | 0.291                  |
|          | LTE Band 5  | 10M      | QPSK       | 1       | 25        | Bottom Side   | 5mm      | 20525 | 836.5       | 22.87               | 24.00               | 1.297                  | 0                | 0.870                  | 1.129                  |
|          | LTE Band 5  | 10M      | QPSK       | 25      | 12        | Bottom Side   | 5mm      | 20525 | 836.5       | 21.73               | 23.00               | 1.340                  | 0.03             | 0.488                  | 0.654                  |
| 23       | LTE Band 5  | 10M      | QPSK       | 50      | 0         | Bottom Side   | 5mm      | 20525 | 836.5       | 21.68               | 23.00               | 1.355                  | 0.06             | 0.468                  | 0.634                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 21350 | 2560        | 21.17               | 22.00               | 1.211                  | 0                | 0.730                  | 0.884                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 20850 | 2510        | 21.09               | 22.00               | 1.233                  | 0                | 0.699                  | 0.862                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 21100 | 2535        | 21.12               | 22.00               | 1.225                  | -0.01            | 0.720                  | 0.882                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 21350 | 2560        | 21.13               | 22.00               | 1.222                  | 0.01             | 0.714                  | 0.872                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 20850 | 2510        | 21.10               | 22.00               | 1.230                  | 0.14             | 0.701                  | 0.862                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 21100 | 2535        | 21.05               | 22.00               | 1.245                  | -0.05            | 0.708                  | 0.881                  |
|          | LTE Band 7  | 20M      | QPSK       | 100     | 0         | Front         | 5mm      | 21350 | 2560        | 21.09               | 22.00               | 1.233                  | -0.01            | 0.714                  | 0.880                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 21350 | 2560        | 21.17               | 22.00               | 1.211                  | -0.06            | 1.100                  | 1.332                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 20850 | 2510        | 21.09               | 22.00               | 1.233                  | -0.07            | 0.887                  | 1.094                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 21100 | 2535        | 21.12               | 22.00               | 1.225                  | -0.02            | 1.000                  | 1.225                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 21350 | 2560        | 21.13               | 22.00               | 1.222                  | -0.02            | 1.080                  | 1.320                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 20850 | 2510        | 21.10               | 22.00               | 1.230                  | 0.01             | 0.857                  | 1.054                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 21100 | 2535        | 21.05               | 22.00               | 1.245                  | -0.04            | 0.962                  | 1.197                  |
|          | LTE Band 7  | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | 21350 | 2560        | 21.09               | 22.00               | 1.233                  | -0.04            | 0.983                  | 1.212                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Left Side     | 5mm      | 21350 | 2560        | 21.17               | 22.00               | 1.211                  | -0.02            | 0.736                  | 0.891                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Left Side     | 5mm      | 20850 | 2510        | 21.09               | 22.00               | 1.233                  | -0.02            | 0.659                  | 0.813                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Left Side     | 5mm      | 21100 | 2535        | 21.12               | 22.00               | 1.225                  | -0.04            | 0.715                  | 0.876                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Left Side     | 5mm      | 21350 | 2560        | 21.13               | 22.00               | 1.222                  | 0.02             | 0.784                  | 0.958                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Left Side     | 5mm      | 20850 | 2510        | 21.10               | 22.00               | 1.230                  | 0.03             | 0.692                  | 0.851                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Left Side     | 5mm      | 21100 | 2535        | 21.05               | 22.00               | 1.245                  | 0.02             | 0.743                  | 0.925                  |
|          | LTE Band 7  | 20M      | QPSK       | 100     | 0         | Left Side     | 5mm      | 21350 | 2560        | 21.09               | 22.00               | 1.233                  | -0.05            | 0.779                  | 0.961                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Right Side    | 5mm      | 21350 | 2560        | 21.17               | 22.00               | 1.211                  | 0.09             | 0.069                  | 0.084                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Right Side    | 5mm      | 21350 | 2560        | 21.13               | 22.00               | 1.222                  | 0.11             | 0.068                  | 0.083                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Bottom Side   | 5mm      | 21350 | 2560        | 21.17               | 22.00               | 1.211                  | -0.04            | 0.858                  | 1.039                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Bottom Side   | 5mm      | 20850 | 2510        | 21.09               | 22.00               | 1.233                  | -0.01            | 0.577                  | 0.712                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Bottom Side   | 5mm      | 21100 | 2535        | 21.12               | 22.00               | 1.225                  | -0.02            | 0.690                  | 0.845                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Bottom Side   | 5mm      | 21350 | 2560        | 21.13               | 22.00               | 1.222                  | -0.05            | 0.863                  | 1.054                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Bottom Side   | 5mm      | 20850 | 2510        | 21.10               | 22.00               | 1.230                  | 0.03             | 0.617                  | 0.759                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Bottom Side   | 5mm      | 21100 | 2535        | 21.05               | 22.00               | 1.245                  | -0.03            | 0.721                  | 0.897                  |
|          | LTE Band 7  | 20M      | QPSK       | 100     | 0         | Bottom Side   | 5mm      | 21350 | 2560        | 21.09               | 22.00               | 1.233                  | -0.04            | 0.870                  | 1.073                  |
|          | LTE Band 12 | 10M      | QPSK       | 1       | 25        | Front         | 5mm      | 23095 | 707.5       | 22.58               | 24.00               | 1.387                  | 0                | 0.548                  | 0.760                  |
|          | LTE Band 12 | 10M      | QPSK       | 25      | 25        | Front         | 5mm      | 23095 | 707.5       | 21.62               | 23.00               | 1.374                  | 0                | 0.305                  | 0.419                  |
| 24       | LTE Band 12 | 10M      | QPSK       | 1       | 25        | Back          | 5mm      | 23095 | 707.5       | 22.58               | 24.00               | 1.387                  | -0.05            | 0.644                  | 0.893                  |
|          | LTE Band 12 | 10M      | QPSK       | 25      | 25        | Back          | 5mm      | 23095 | 707.5       | 21.62               | 23.00               | 1.374                  | -0.04            | 0.360                  | 0.495                  |
|          | LTE Band 12 | 10M      | QPSK       | 50      | 0         | Back          | 5mm      | 23095 | 707.5       | 21.59               | 23.00               | 1.384                  | -0.01            | 0.351                  | 0.486                  |
|          | LTE Band 12 | 10M      | QPSK       | 1       | 25        | Left Side     | 5mm      | 23095 | 707.5       | 22.58               | 24.00               | 1.387                  | -0.01            | 0.170                  | 0.236                  |
|          | LTE Band 12 | 10M      | QPSK       | 25      | 25        | Left Side     | 5mm      | 23095 | 707.5       | 21.62               | 23.00               | 1.374                  | 0.01             | 0.096                  | 0.132                  |
|          | LTE Band 12 | 10M      | QPSK       | 1       | 25        | Right Side    | 5mm      | 23095 | 707.5       | 22.58               | 24.00               | 1.387                  | 0.02             | 0.332                  | 0.460                  |
|          | LTE Band 12 | 10M      | QPSK       | 25      | 25        | Right Side    | 5mm      | 23095 | 707.5       | 21.62               | 23.00               | 1.374                  | 0.01             | 0.186                  | 0.256                  |
|          | LTE Band 12 | 10M      | QPSK       | 1       | 25        | Bottom Side   | 5mm      | 23095 | 707.5       | 22.58               | 24.00               | 1.387                  | 0.11             | 0.501                  | 0.695                  |
|          | LTE Band 12 | 10M      | QPSK       | 25      | 25        | Bottom Side   | 5mm      | 23095 | 707.5       | 21.62               | 23.00               | 1.374                  | 0.03             | 0.279                  | 0.383                  |
|          | LTE Band 12 | 10M      | QPSK       | 25      | 25        | Bottom Side   | 5mm      | 23095 | 707.5       | 21.62               | 23.00               | 1.374                  | 0.03             | 0.279                  | 0.383                  |

| 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 66 | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 132322 | 1745        | 19.65               | 20.50               | 1.216                  | 0.02             | 0.867                  | 1.054                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 132072 | 1720        | 19.58               | 20.50               | 1.236                  | 0.01             | 0.811                  | 1.002                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | 132572 | 1770        | 19.58               | 20.50               | 1.236                  | 0.03             | 0.840                  | 1.038                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 132322 | 1745        | 19.58               | 20.50               | 1.236                  | -0.02            | 0.848                  | 1.048                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 132072 | 1720        | 19.52               | 20.50               | 1.253                  | 0.03             | 0.819                  | 1.026                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | 132572 | 1770        | 19.46               | 20.50               | 1.271                  | 0                | 0.828                  | 1.052                  |
|          | LTE Band 66 | 20M      | QPSK       | 100     | 0         | Front         | 5mm      | 132322 | 1745        | 19.46               | 20.50               | 1.271                  | 0                | 0.822                  | 1.044                  |
| 25       | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132322 | 1745        | 19.65               | 20.50               | 1.216                  | 0.11             | 1.080                  | 1.313                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132072 | 1720        | 19.58               | 20.50               | 1.236                  | 0.1              | 0.974                  | 1.204                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | 132572 | 1770        | 19.58               | 20.50               | 1.236                  | 0.01             | 0.999                  | 1.235                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 132322 | 1745        | 19.58               | 20.50               | 1.236                  | -0.04            | 1.020                  | 1.261                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 132072 | 1720        | 19.52               | 20.50               | 1.253                  | -0.03            | 0.927                  | 1.162                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | 132572 | 1770        | 19.46               | 20.50               | 1.271                  | -0.05            | 1.000                  | 1.271                  |
|          | LTE Band 66 | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | 132322 | 1745        | 19.46               | 20.50               | 1.271                  | 0.01             | 1.030                  | 1.309                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Left Side     | 5mm      | 132322 | 1745        | 18.18               | 18.50               | 1.076                  | -0.12            | 0.060                  | 0.065                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Left Side     | 5mm      | 132322 | 1745        | 18.00               | 18.50               | 1.122                  | 0.06             | 0.043                  | 0.048                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Right Side    | 5mm      | 132322 | 1745        | 18.18               | 18.50               | 1.076                  | -0.09            | 0.281                  | 0.302                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Right Side    | 5mm      | 132322 | 1745        | 18.00               | 18.50               | 1.122                  | -0.08            | 0.264                  | 0.296                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Bottom Side   | 5mm      | 132322 | 1745        | 18.18               | 18.50               | 1.076                  | 0.14             | 0.947                  | 1.019                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Bottom Side   | 5mm      | 132072 | 1720        | 18.16               | 18.50               | 1.081                  | 0.04             | 1.180                  | 1.276                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Bottom Side   | 5mm      | 132572 | 1770        | 18.15               | 18.50               | 1.084                  | 0.05             | 1.040                  | 1.127                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Bottom Side   | 5mm      | 132322 | 1745        | 18.00               | 18.50               | 1.122                  | -0.11            | 0.950                  | 1.066                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Bottom Side   | 5mm      | 132072 | 1720        | 17.96               | 18.50               | 1.132                  | -0.16            | 0.980                  | 1.110                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Bottom Side   | 5mm      | 132572 | 1770        | 17.92               | 18.50               | 1.143                  | 0.04             | 1.020                  | 1.166                  |
|          | LTE Band 66 | 20M      | QPSK       | 100     | 0         | Bottom Side   | 5mm      | 132322 | 1745        | 17.95               | 18.50               | 1.135                  | -0.1             | 0.929                  | 1.054                  |

**<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) |
|----------|------------|-------------------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
|          | WLAN2.4GHz | 802.11b 1Mbps     | Front         | 5mm      | 1   | 2412        | 17.55               | 19.00               | 1.396                  | 100          | 1.000                     | -0.06            | 0.409                  | 0.571                  |
|          | WLAN2.4GHz | 802.11b 1Mbps     | Back          | 5mm      | 1   | 2412        | 17.55               | 19.00               | 1.396                  | 100          | 1.000                     | 0.07             | 0.731                  | 1.021                  |
| 26       | WLAN2.4GHz | 802.11b 1Mbps     | Back          | 5mm      | 6   | 2437        | 17.10               | 19.00               | 1.549                  | 100          | 1.000                     | -0.01            | 0.720                  | 1.115                  |
|          | WLAN2.4GHz | 802.11b 1Mbps     | Back          | 5mm      | 11  | 2462        | 17.41               | 19.00               | 1.442                  | 100          | 1.000                     | 0                | 0.689                  | 0.994                  |
|          | WLAN2.4GHz | 802.11b 1Mbps     | Right Side    | 5mm      | 1   | 2412        | 17.55               | 19.00               | 1.396                  | 100          | 1.000                     | -0.03            | 0.310                  | 0.433                  |
|          | WLAN2.4GHz | 802.11b 1Mbps     | Top Side      | 5mm      | 1   | 2412        | 17.55               | 19.00               | 1.396                  | 100          | 1.000                     | -0.04            | 0.530                  | 0.740                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Front         | 5mm      | 44  | 5220        | 14.89               | 15.00               | 1.027                  | 98.28        | 1.018                     | -0.11            | 0.047                  | 0.049                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | 44  | 5220        | 14.89               | 15.00               | 1.027                  | 98.28        | 1.018                     | -0.1             | 1.050                  | 1.097                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | 36  | 5180        | 14.80               | 15.00               | 1.048                  | 98.28        | 1.018                     | 0.13             | 1.170                  | 1.249                  |
| 27       | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | 40  | 5200        | 13.30               | 15.00               | 1.479                  | 98.28        | 1.018                     | 0.02             | 0.908                  | 1.367                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | 48  | 5240        | 14.86               | 15.00               | 1.034                  | 98.28        | 1.018                     | -0.05            | 1.090                  | 1.147                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Right Side    | 5mm      | 44  | 5220        | 14.89               | 15.00               | 1.027                  | 98.28        | 1.018                     | 0.14             | 0.082                  | 0.086                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Top Side      | 5mm      | 44  | 5220        | 14.89               | 15.00               | 1.027                  | 98.28        | 1.018                     | -0.12            | 0.236                  | 0.247                  |
|          | WLAN5GHz   | 802.11n-HT40 MCS0 | Front         | 5mm      | 151 | 5755        | 12.88               | 13.00               | 1.027                  | 96.32        | 1.038                     | -0.13            | 0.028                  | 0.030                  |
|          | WLAN5GHz   | 802.11n-HT40 MCS0 | Back          | 5mm      | 151 | 5755        | 12.88               | 13.00               | 1.027                  | 96.32        | 1.038                     | -0.05            | 1.130                  | 1.205                  |
| 28       | WLAN5GHz   | 802.11n-HT40 MCS0 | Back          | 5mm      | 159 | 5795        | 11.40               | 13.00               | 1.445                  | 96.32        | 1.038                     | 0.15             | 0.868                  | 1.302                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | 149 | 5745        | 11.32               | 13.00               | 1.474                  | 98.28        | 1.018                     | 0                | 0.780                  | 1.170                  |
|          | WLAN5GHz   | 802.11n-HT40 MCS0 | Right Side    | 5mm      | 151 | 5755        | 12.88               | 13.00               | 1.027                  | 96.32        | 1.038                     | 0.08             | 0.078                  | 0.083                  |
|          | WLAN5GHz   | 802.11n-HT40 MCS0 | Top Side      | 5mm      | 151 | 5755        | 12.88               | 13.00               | 1.027                  | 96.32        | 1.038                     | -0.06            | 0.160                  | 0.171                  |

**<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) |
|----------|-----------|-------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
|          | Bluetooth | 1Mbps | Front         | 5mm      | 39  | 2441        | 12.01               | 13.00               | 1.256                  | 77.6         | 1.073                     | 0.14             | 0.074                  | 0.100                  |
| 29       | Bluetooth | 1Mbps | Back          | 5mm      | 39  | 2441        | 12.01               | 13.00               | 1.256                  | 77.6         | 1.073                     | -0.02            | 0.112                  | 0.151                  |
|          | Bluetooth | 1Mbps | Right Side    | 5mm      | 39  | 2441        | 12.01               | 13.00               | 1.256                  | 77.6         | 1.073                     | -0.05            | 0.043                  | 0.058                  |
|          | Bluetooth | 1Mbps | Top Side      | 5mm      | 39  | 2441        | 12.01               | 13.00               | 1.256                  | 77.6         | 1.073                     | 0.13             | 0.061                  | 0.082                  |

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

| Plot No. | Band    | Mode              | Test Position | Gap (mm) | Headset   | 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) |
|----------|---------|-------------------|---------------|----------|-----------|-----|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
|          | GSM850  | GPRS (2 Tx slots) | Front         | 5mm      | -         | 128 | 824.2       | 31.02               | 31.50               | 1.117                  | -0.04            | 0.503                  | 0.562                  |
| 30       | GSM850  | GPRS (2 Tx slots) | Back          | 5mm      | -         | 128 | 824.2       | 31.02               | 31.50               | 1.117                  | -0.09            | 0.620                  | 0.692                  |
|          | GSM1900 | GPRS (2 Tx slots) | Front         | 5mm      | -         | 512 | 1850.2      | 28.05               | 28.50               | 1.109                  | -0.05            | 0.934                  | 1.036                  |
|          | GSM1900 | GPRS (2 Tx slots) | Front         | 5mm      | -         | 661 | 1880        | 27.91               | 28.50               | 1.146                  | -0.06            | 0.783                  | 0.897                  |
|          | GSM1900 | GPRS (2 Tx slots) | Front         | 5mm      | -         | 810 | 1909.8      | 27.88               | 28.50               | 1.153                  | -0.15            | 0.814                  | 0.939                  |
| 31       | GSM1900 | GPRS (2 Tx slots) | Back          | 5mm      | -         | 512 | 1850.2      | 28.05               | 28.50               | 1.109                  | 0.01             | 1.160                  | 1.287                  |
|          | GSM1900 | GPRS (2 Tx slots) | Back          | 5mm      | -         | 661 | 1880        | 27.91               | 28.50               | 1.146                  | -0.07            | 1.110                  | 1.272                  |
|          | GSM1900 | GPRS (2 Tx slots) | Back          | 5mm      | -         | 810 | 1909.8      | 27.88               | 28.50               | 1.153                  | -0.14            | 1.050                  | 1.211                  |
|          | GSM1900 | GPRS (2 Tx slots) | Back          | 5mm      | Headset 1 | 512 | 1850.2      | 28.05               | 28.50               | 1.109                  | 0.01             | 1.110                  | 1.231                  |
|          | GSM1900 | GPRS (2 Tx slots) | Back          | 5mm      | Headset 2 | 512 | 1850.2      | 28.05               | 28.50               | 1.109                  | 0.01             | 1.050                  | 1.165                  |
|          | GSM1900 | GPRS (2 Tx slots) | Back          | 5mm      | Headset 3 | 512 | 1850.2      | 28.05               | 28.50               | 1.109                  | 0.01             | 1.030                  | 1.142                  |

**<WCDMA SAR>**

| Plot No. | Band     | Mode         | Test Position | Gap (mm) | Headset   | 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) |
|----------|----------|--------------|---------------|----------|-----------|------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
|          | WCDMA II | RMC 12.2Kbps | Front         | 5mm      | -         | 9262 | 1852.4      | 20.33               | 21.00               | 1.167                  | 0.03             | 0.869                  | 1.014                  |
|          | WCDMA II | RMC 12.2Kbps | Front         | 5mm      | -         | 9400 | 1880        | 20.25               | 21.00               | 1.189                  | 0.01             | 0.845                  | 1.004                  |
|          | WCDMA II | RMC 12.2Kbps | Front         | 5mm      | -         | 9538 | 1907.6      | 20.23               | 21.00               | 1.194                  | 0.03             | 0.836                  | 0.998                  |
|          | WCDMA II | RMC 12.2Kbps | Back          | 5mm      | -         | 9262 | 1852.4      | 20.33               | 21.00               | 1.167                  | -0.02            | 1.030                  | 1.202                  |
|          | WCDMA II | RMC 12.2Kbps | Back          | 5mm      | -         | 9400 | 1880        | 20.25               | 21.00               | 1.189                  | 0.01             | 1.070                  | 1.272                  |
| 32       | WCDMA II | RMC 12.2Kbps | Back          | 5mm      | -         | 9538 | 1907.6      | 20.23               | 21.00               | 1.194                  | -0.01            | 1.090                  | 1.301                  |
|          | WCDMA II | RMC 12.2Kbps | Back          | 5mm      | Headset 1 | 9538 | 1907.6      | 20.23               | 21.00               | 1.194                  | -0.02            | 1.010                  | 1.206                  |
|          | WCDMA II | RMC 12.2Kbps | Back          | 5mm      | Headset 2 | 9538 | 1907.6      | 20.23               | 21.00               | 1.194                  | 0.18             | 0.998                  | 1.192                  |
|          | WCDMA II | RMC 12.2Kbps | Back          | 5mm      | Headset 3 | 9538 | 1907.6      | 20.23               | 21.00               | 1.194                  | -0.07            | 0.995                  | 1.188                  |
|          | WCDMA IV | RMC 12.2Kbps | Front         | 5mm      | -         | 1413 | 1732.6      | 19.31               | 20.00               | 1.172                  | 0.04             | 0.980                  | 1.149                  |
|          | WCDMA IV | RMC 12.2Kbps | Front         | 5mm      | -         | 1312 | 1712.4      | 19.30               | 20.00               | 1.175                  | 0.03             | 0.902                  | 1.060                  |
|          | WCDMA IV | RMC 12.2Kbps | Front         | 5mm      | -         | 1513 | 1752.6      | 19.29               | 20.00               | 1.178                  | 0                | 0.995                  | 1.172                  |
|          | WCDMA IV | RMC 12.2Kbps | Back          | 5mm      | -         | 1413 | 1732.6      | 19.31               | 20.00               | 1.172                  | 0.04             | 1.120                  | 1.313                  |
|          | WCDMA IV | RMC 12.2Kbps | Back          | 5mm      | -         | 1312 | 1712.4      | 19.30               | 20.00               | 1.175                  | -0.01            | 1.010                  | 1.187                  |
| 33       | WCDMA IV | RMC 12.2Kbps | Back          | 5mm      | -         | 1513 | 1752.6      | 19.29               | 20.00               | 1.178                  | -0.03            | 1.140                  | 1.342                  |
|          | WCDMA IV | RMC 12.2Kbps | Back          | 5mm      | Headset 1 | 1513 | 1752.6      | 19.29               | 20.00               | 1.178                  | 0.05             | 1.090                  | 1.284                  |
|          | WCDMA IV | RMC 12.2Kbps | Back          | 5mm      | Headset 2 | 1513 | 1752.6      | 19.29               | 20.00               | 1.178                  | 0.14             | 1.060                  | 1.248                  |
|          | WCDMA IV | RMC 12.2Kbps | Back          | 5mm      | Headset 3 | 1513 | 1752.6      | 19.29               | 20.00               | 1.178                  | 0.11             | 1.020                  | 1.201                  |

| Plot No. | Band    | Mode         | Test Position | Gap (mm) | Headset   | 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) |
|----------|---------|--------------|---------------|----------|-----------|------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
|          | WCDMA V | RMC 12.2Kbps | Front         | 5mm      | -         | 4132 | 826.4       | 22.27               | 23.00               | 1.183                  | -0.02            | 0.813                  | 0.962                  |
|          | WCDMA V | RMC 12.2Kbps | Front         | 5mm      | -         | 4182 | 836.4       | 22.15               | 23.00               | 1.216                  | -0.06            | 0.929                  | 1.130                  |
|          | WCDMA V | RMC 12.2Kbps | Front         | 5mm      | -         | 4233 | 846.6       | 22.03               | 23.00               | 1.250                  | 0                | 0.951                  | 1.189                  |
|          | WCDMA V | RMC 12.2Kbps | Back          | 5mm      | -         | 4132 | 826.4       | 22.27               | 23.00               | 1.183                  | -0.02            | 0.893                  | 1.056                  |
|          | WCDMA V | RMC 12.2Kbps | Back          | 5mm      | -         | 4182 | 836.4       | 22.15               | 23.00               | 1.216                  | -0.04            | 1.000                  | 1.216                  |
| 34       | WCDMA V | RMC 12.2Kbps | Back          | 5mm      | -         | 4233 | 846.6       | 22.03               | 23.00               | 1.250                  | -0.03            | 1.090                  | 1.363                  |
|          | WCDMA V | RMC 12.2Kbps | Back          | 5mm      | Headset 1 | 4233 | 846.6       | 22.03               | 23.00               | 1.250                  | -0.05            | 1.010                  | 1.263                  |
|          | WCDMA V | RMC 12.2Kbps | Back          | 5mm      | Headset 2 | 4233 | 846.6       | 22.03               | 23.00               | 1.250                  | -0.04            | 1.010                  | 1.263                  |
|          | WCDMA V | RMC 12.2Kbps | Back          | 5mm      | Headset 3 | 4233 | 846.6       | 22.03               | 23.00               | 1.250                  | -0.02            | 0.993                  | 1.242                  |

**<FDD LTE SAR>**

| Plot No. | Band       | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Headset   | 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 | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | -         | 18700 | 1860        | 20.87               | 21.50               | 1.156                  | 0.05             | 0.797                  | 0.921                  |
|          | LTE Band 2 | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | -         | 18900 | 1880        | 20.79               | 21.50               | 1.178                  | -0.02            | 0.815                  | 0.960                  |
|          | LTE Band 2 | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | -         | 19100 | 1900        | 20.85               | 21.50               | 1.161                  | 0                | 0.823                  | 0.956                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | -         | 18700 | 1860        | 20.77               | 21.50               | 1.183                  | -0.01            | 0.841                  | 0.995                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | -         | 18900 | 1880        | 20.71               | 21.50               | 1.199                  | 0.01             | 0.823                  | 0.987                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | -         | 19100 | 1900        | 20.75               | 21.50               | 1.189                  | 0                | 0.844                  | 1.003                  |
|          | LTE Band 2 | 20M      | QPSK       | 100     | 0         | Front         | 5mm      | -         | 18700 | 1860        | 20.74               | 21.50               | 1.191                  | 0.01             | 0.861                  | 1.026                  |
|          | LTE Band 2 | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | -         | 18700 | 1860        | 20.87               | 21.50               | 1.156                  | 0.11             | 1.060                  | 1.225                  |
|          | LTE Band 2 | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | -         | 18900 | 1880        | 20.79               | 21.50               | 1.178                  | -0.02            | 1.090                  | 1.284                  |
|          | LTE Band 2 | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | -         | 19100 | 1900        | 20.85               | 21.50               | 1.161                  | 0.01             | 1.110                  | 1.289                  |
| 35       | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | -         | 18700 | 1860        | 20.77               | 21.50               | 1.183                  | -0.04            | 1.130                  | 1.337                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | -         | 18900 | 1880        | 20.71               | 21.50               | 1.199                  | 0                | 1.080                  | 1.295                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | -         | 19100 | 1900        | 20.75               | 21.50               | 1.189                  | -0.04            | 1.120                  | 1.331                  |
|          | LTE Band 2 | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | -         | 18700 | 1860        | 20.74               | 21.50               | 1.191                  | 0.07             | 1.090                  | 1.298                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | Headset 1 | 18700 | 1860        | 20.77               | 21.50               | 1.183                  | 0.01             | 1.010                  | 1.195                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | Headset 2 | 18700 | 1860        | 20.77               | 21.50               | 1.183                  | 0.17             | 0.988                  | 1.169                  |
|          | LTE Band 2 | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | Headset 3 | 18700 | 1860        | 20.77               | 21.50               | 1.183                  | -0.06            | 1.000                  | 1.183                  |
|          | LTE Band 5 | 10M      | QPSK       | 1       | 25        | Front         | 5mm      | -         | 20525 | 836.5       | 22.87               | 24.00               | 1.297                  | 0                | 0.828                  | 1.074                  |
|          | LTE Band 5 | 10M      | QPSK       | 25      | 12        | Front         | 5mm      | -         | 20525 | 836.5       | 21.73               | 23.00               | 1.340                  | -0.02            | 0.488                  | 0.654                  |
|          | LTE Band 5 | 10M      | QPSK       | 50      | 0         | Front         | 5mm      | -         | 20525 | 836.5       | 21.68               | 23.00               | 1.355                  | -0.02            | 0.473                  | 0.641                  |
| 36       | LTE Band 5 | 10M      | QPSK       | 1       | 25        | Back          | 5mm      | -         | 20525 | 836.5       | 22.87               | 24.00               | 1.297                  | -0.01            | 1.040                  | 1.349                  |
|          | LTE Band 5 | 10M      | QPSK       | 25      | 12        | Back          | 5mm      | -         | 20525 | 836.5       | 21.73               | 23.00               | 1.340                  | -0.02            | 0.850                  | 1.139                  |
|          | LTE Band 5 | 10M      | QPSK       | 50      | 0         | Back          | 5mm      | -         | 20525 | 836.5       | 21.68               | 23.00               | 1.355                  | 0.07             | 0.820                  | 1.111                  |
|          | LTE Band 5 | 10M      | QPSK       | 1       | 25        | Back          | 5mm      | Headset 1 | 20525 | 836.5       | 22.87               | 24.00               | 1.297                  | -0.05            | 1.030                  | 1.336                  |
|          | LTE Band 5 | 10M      | QPSK       | 1       | 25        | Back          | 5mm      | Headset 2 | 20525 | 836.5       | 22.87               | 24.00               | 1.297                  | -0.12            | 1.030                  | 1.336                  |
|          | LTE Band 5 | 10M      | QPSK       | 1       | 25        | Back          | 5mm      | Headset 3 | 20525 | 836.5       | 22.87               | 24.00               | 1.297                  | -0.04            | 1.010                  | 1.310                  |



# FCC SAR TEST REPORT

Report No. : FA962518

| Plot No. | Band        | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Headset   | 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 7  | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | -         | 21350  | 2560        | 21.17               | 22.00               | 1.211                  | 0                | 0.730                  | 0.884                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | -         | 20850  | 2510        | 21.09               | 22.00               | 1.233                  | 0                | 0.699                  | 0.862                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | -         | 21100  | 2535        | 21.12               | 22.00               | 1.225                  | -0.01            | 0.720                  | 0.882                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | -         | 21350  | 2560        | 21.13               | 22.00               | 1.222                  | 0.01             | 0.714                  | 0.872                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | -         | 20850  | 2510        | 21.10               | 22.00               | 1.230                  | 0.14             | 0.701                  | 0.862                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | -         | 21100  | 2535        | 21.05               | 22.00               | 1.245                  | -0.05            | 0.708                  | 0.881                  |
|          | LTE Band 7  | 20M      | QPSK       | 100     | 0         | Front         | 5mm      | -         | 21350  | 2560        | 21.09               | 22.00               | 1.233                  | -0.01            | 0.714                  | 0.880                  |
| 37       | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | -         | 21350  | 2560        | 21.17               | 22.00               | 1.211                  | -0.06            | 1.100                  | 1.332                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | -         | 20850  | 2510        | 21.09               | 22.00               | 1.233                  | -0.07            | 0.887                  | 1.094                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | -         | 21100  | 2535        | 21.12               | 22.00               | 1.225                  | -0.02            | 1.000                  | 1.225                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | -         | 21350  | 2560        | 21.13               | 22.00               | 1.222                  | -0.02            | 1.080                  | 1.320                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | -         | 20850  | 2510        | 21.10               | 22.00               | 1.230                  | 0.01             | 0.857                  | 1.054                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | -         | 21100  | 2535        | 21.05               | 22.00               | 1.245                  | -0.04            | 0.962                  | 1.197                  |
|          | LTE Band 7  | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | -         | 21350  | 2560        | 21.09               | 22.00               | 1.233                  | -0.04            | 0.983                  | 1.212                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | Headset 1 | 21350  | 2560        | 21.17               | 22.00               | 1.211                  | 0.03             | 1.060                  | 1.283                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | Headset 2 | 21350  | 2560        | 21.17               | 22.00               | 1.211                  | -0.05            | 1.050                  | 1.271                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | Headset 3 | 21350  | 2560        | 21.17               | 22.00               | 1.211                  | -0.14            | 1.020                  | 1.235                  |
|          | LTE Band 12 | 10M      | QPSK       | 1       | 25        | Front         | 5mm      | -         | 23095  | 707.5       | 22.58               | 24.00               | 1.387                  | 0                | 0.548                  | 0.760                  |
|          | LTE Band 12 | 10M      | QPSK       | 25      | 25        | Front         | 5mm      | -         | 23095  | 707.5       | 21.62               | 23.00               | 1.374                  | 0                | 0.305                  | 0.419                  |
| 38       | LTE Band 12 | 10M      | QPSK       | 1       | 25        | Back          | 5mm      | -         | 23095  | 707.5       | 22.58               | 24.00               | 1.387                  | -0.05            | 0.644                  | 0.893                  |
|          | LTE Band 12 | 10M      | QPSK       | 25      | 25        | Back          | 5mm      | -         | 23095  | 707.5       | 21.62               | 23.00               | 1.374                  | -0.04            | 0.360                  | 0.495                  |
|          | LTE Band 12 | 10M      | QPSK       | 50      | 0         | Back          | 5mm      | -         | 23095  | 707.5       | 21.59               | 23.00               | 1.384                  | -0.01            | 0.351                  | 0.486                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | -         | 132322 | 1745        | 19.65               | 20.50               | 1.216                  | 0.02             | 0.867                  | 1.054                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | -         | 132072 | 1720        | 19.58               | 20.50               | 1.236                  | 0.01             | 0.811                  | 1.002                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Front         | 5mm      | -         | 132572 | 1770        | 19.58               | 20.50               | 1.236                  | 0.03             | 0.840                  | 1.038                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | -         | 132322 | 1745        | 19.58               | 20.50               | 1.236                  | -0.02            | 0.848                  | 1.048                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | -         | 132072 | 1720        | 19.52               | 20.50               | 1.253                  | 0.03             | 0.819                  | 1.026                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Front         | 5mm      | -         | 132572 | 1770        | 19.46               | 20.50               | 1.271                  | 0                | 0.828                  | 1.052                  |
|          | LTE Band 66 | 20M      | QPSK       | 100     | 0         | Front         | 5mm      | -         | 132322 | 1745        | 19.46               | 20.50               | 1.271                  | 0                | 0.822                  | 1.044                  |
| 39       | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | -         | 132322 | 1745        | 19.65               | 20.50               | 1.216                  | 0.11             | 1.080                  | 1.313                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | -         | 132072 | 1720        | 19.58               | 20.50               | 1.236                  | 0.1              | 0.974                  | 1.204                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | -         | 132572 | 1770        | 19.58               | 20.50               | 1.236                  | 0.01             | 0.999                  | 1.235                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | -         | 132322 | 1745        | 19.58               | 20.50               | 1.236                  | -0.04            | 1.020                  | 1.261                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | -         | 132072 | 1720        | 19.52               | 20.50               | 1.253                  | -0.03            | 0.927                  | 1.162                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Back          | 5mm      | -         | 132572 | 1770        | 19.46               | 20.50               | 1.271                  | -0.05            | 1.000                  | 1.271                  |
|          | LTE Band 66 | 20M      | QPSK       | 100     | 0         | Back          | 5mm      | -         | 132322 | 1745        | 19.46               | 20.50               | 1.271                  | 0.01             | 1.030                  | 1.309                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | Headset 1 | 132322 | 1745        | 19.46               | 20.50               | 1.271                  | -0.02            | 1.030                  | 1.309                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | Headset 2 | 132322 | 1745        | 19.46               | 20.50               | 1.271                  | 0.08             | 1.020                  | 1.296                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Back          | 5mm      | Headset 3 | 132322 | 1745        | 19.46               | 20.50               | 1.271                  | 0.06             | 0.984                  | 1.250                  |

**<WLAN SAR>**

| Plot No. | Band       | Mode              | Test Position | Gap (mm) | Headset   | 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) |
|----------|------------|-------------------|---------------|----------|-----------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
|          | WLAN2.4GHz | 802.11b 1Mbps     | Front         | 5mm      | -         | 1   | 2412        | 17.55               | 19.00               | 1.396                  | 100          | 1.000                     | -0.06            | 0.409                  | 0.571                  |
|          | WLAN2.4GHz | 802.11b 1Mbps     | Back          | 5mm      | -         | 1   | 2412        | 17.55               | 19.00               | 1.396                  | 100          | 1.000                     | 0.07             | 0.731                  | 1.021                  |
| 40       | WLAN2.4GHz | 802.11b 1Mbps     | Back          | 5mm      | -         | 6   | 2437        | 17.10               | 19.00               | 1.549                  | 100          | 1.000                     | -0.01            | 0.720                  | 1.115                  |
|          | WLAN2.4GHz | 802.11b 1Mbps     | Back          | 5mm      | -         | 11  | 2462        | 17.41               | 19.00               | 1.442                  | 100          | 1.000                     | 0                | 0.689                  | 0.994                  |
|          | WLAN2.4GHz | 802.11b 1Mbps     | Back          | 5mm      | Headset1  | 11  | 2462        | 17.41               | 19.00               | 1.442                  | 100          | 1.000                     | 0.01             | 0.465                  | 0.671                  |
|          | WLAN2.4GHz | 802.11b 1Mbps     | Back          | 5mm      | Headset2  | 11  | 2462        | 17.41               | 19.00               | 1.442                  | 100          | 1.000                     | -0.01            | 0.488                  | 0.704                  |
|          | WLAN2.4GHz | 802.11b 1Mbps     | Back          | 5mm      | Headset3  | 11  | 2462        | 17.41               | 19.00               | 1.442                  | 100          | 1.000                     | 0.02             | 0.435                  | 0.627                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Front         | 5mm      | -         | 64  | 5320        | 15.50               | 17.00               | 1.413                  | 98.28        | 1.018                     | -0.03            | 0.038                  | 0.055                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | -         | 64  | 5320        | 15.50               | 17.00               | 1.413                  | 98.28        | 1.018                     | -0.01            | 0.858                  | 1.234                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | -         | 52  | 5260        | 15.12               | 17.00               | 1.543                  | 98.28        | 1.018                     | -0.05            | 0.830                  | 1.304                  |
| 41       | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | -         | 56  | 5280        | 15.17               | 17.00               | 1.526                  | 98.28        | 1.018                     | -0.03            | 0.888                  | 1.379                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | -         | 60  | 5300        | 15.23               | 17.00               | 1.505                  | 98.28        | 1.018                     | -0.07            | 0.869                  | 1.331                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | Headset1  | 56  | 5280        | 15.17               | 17.00               | 1.526                  | 98.28        | 1.018                     | -0.06            | 0.826                  | 1.283                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | Headset2  | 56  | 5280        | 15.17               | 17.00               | 1.526                  | 98.28        | 1.018                     | -0.16            | 0.583                  | 0.905                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | Headset3  | 56  | 5280        | 15.17               | 17.00               | 1.526                  | 98.28        | 1.018                     | -0.16            | 0.528                  | 0.820                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Front         | 5mm      | -         | 116 | 5580        | 13.99               | 14.00               | 1.002                  | 98.28        | 1.018                     | -0.16            | 0.034                  | 0.035                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | -         | 116 | 5580        | 13.99               | 14.00               | 1.002                  | 98.28        | 1.018                     | 0.13             | 1.130                  | 1.153                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | -         | 100 | 5500        | 13.98               | 14.00               | 1.005                  | 98.28        | 1.018                     | -0.04            | 0.907                  | 0.928                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | -         | 124 | 5620        | 13.93               | 14.00               | 1.017                  | 98.28        | 1.018                     | -0.01            | 1.250                  | 1.295                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | -         | 132 | 5660        | 13.99               | 14.00               | 1.003                  | 98.28        | 1.018                     | -0.1             | 1.270                  | 1.297                  |
| 42       | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | -         | 144 | 5720        | 12.10               | 14.00               | 1.549                  | 98.28        | 1.018                     | 0.17             | 0.853                  | 1.345                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | Headset 1 | 144 | 5720        | 12.10               | 14.00               | 1.549                  | 98.28        | 1.018                     | -0.11            | 0.843                  | 1.330                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | Headset2  | 144 | 5720        | 12.10               | 14.00               | 1.549                  | 98.28        | 1.018                     | 0.04             | 0.709                  | 1.118                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | Headset3  | 144 | 5720        | 12.10               | 14.00               | 1.549                  | 98.28        | 1.018                     | 0.02             | 0.689                  | 1.086                  |
|          | WLAN5GHz   | 802.11n-HT40 MCS0 | Front         | 5mm      | -         | 151 | 5755        | 12.88               | 13.00               | 1.027                  | 96.32        | 1.038                     | -0.13            | 0.028                  | 0.030                  |
|          | WLAN5GHz   | 802.11n-HT40 MCS0 | Back          | 5mm      | -         | 151 | 5755        | 12.88               | 13.00               | 1.027                  | 96.32        | 1.038                     | -0.05            | 1.130                  | 1.205                  |
| 43       | WLAN5GHz   | 802.11n-HT40 MCS0 | Back          | 5mm      | -         | 159 | 5795        | 11.40               | 13.00               | 1.445                  | 96.32        | 1.038                     | 0.15             | 0.868                  | 1.302                  |
|          | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | -         | 149 | 5745        | 11.32               | 13.00               | 1.474                  | 98.28        | 1.018                     | 0                | 0.780                  | 1.170                  |
|          | WLAN5GHz   | 802.11n-HT40 MCS0 | Back          | 5mm      | Headset1  | 159 | 5795        | 11.40               | 13.00               | 1.445                  | 96.32        | 1.038                     | 0.05             | 0.589                  | 0.884                  |
|          | WLAN5GHz   | 802.11n-HT40 MCS0 | Back          | 5mm      | Headset2  | 159 | 5795        | 11.40               | 13.00               | 1.445                  | 96.32        | 1.038                     | -0.06            | 0.529                  | 0.794                  |
|          | WLAN5GHz   | 802.11n-HT40 MCS0 | Back          | 5mm      | Headset3  | 159 | 5795        | 11.40               | 13.00               | 1.445                  | 96.32        | 1.038                     | -0.17            | 0.523                  | 0.784                  |

**<Bluetooth SAR>**

| Plot No. | Band      | Mode  | Test Position | Gap (mm) | Headset  | 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) |
|----------|-----------|-------|---------------|----------|----------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
|          | Bluetooth | 1Mbps | Front         | 5mm      | -        | 39  | 2441        | 12.01               | 13.00               | 1.256                  | 77.6         | 1.073                     | 0.14             | 0.074                  | 0.100                  |
| 44       | Bluetooth | 1Mbps | Back          | 5mm      | -        | 39  | 2441        | 12.01               | 13.00               | 1.256                  | 77.6         | 1.073                     | -0.02            | 0.112                  | 0.151                  |
|          | Bluetooth | 1Mbps | Back          | 5mm      | Headset1 | 39  | 2441        | 12.01               | 13.00               | 1.256                  | 77.6         | 1.073                     | -0.05            | 0.073                  | 0.098                  |
|          | Bluetooth | 1Mbps | Back          | 5mm      | Headset2 | 39  | 2441        | 12.01               | 13.00               | 1.256                  | 77.6         | 1.073                     | 0.01             | 0.069                  | 0.093                  |
|          | Bluetooth | 1Mbps | Back          | 5mm      | Headset3 | 39  | 2441        | 12.01               | 13.00               | 1.256                  | 77.6         | 1.073                     | -0.05            | 0.055                  | 0.074                  |



## 14.4 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) |
|----------|---------|-------------------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|------------------|-------------------------|-------------------------|
| 45       | GSM1900 | GPRS (2 Tx slots) | Back          | 0mm      | 512 | 1850.2      | 28.05               | 28.50               | 1.109                  | 0.09             | 2.120                   | 2.351                   |
|          | GSM1900 | GPRS (2 Tx slots) | Back          | 0mm      | 661 | 1880        | 27.91               | 28.50               | 1.146                  | 0.13             | 1.640                   | 1.879                   |
|          | GSM1900 | GPRS (2 Tx slots) | Back          | 0mm      | 810 | 1909.8      | 27.88               | 28.50               | 1.153                  | 0.1              | 1.690                   | 1.949                   |
|          | GSM1900 | GPRS (2 Tx slots) | Bottom Side   | 0mm      | 512 | 1850.2      | 28.05               | 28.50               | 1.109                  | -0.11            | 1.970                   | 2.185                   |
|          | GSM1900 | GPRS (2 Tx slots) | Bottom Side   | 0mm      | 661 | 1880        | 27.91               | 28.50               | 1.146                  | -0.07            | 1.330                   | 1.524                   |
|          | GSM1900 | GPRS (2 Tx slots) | Bottom Side   | 0mm      | 810 | 1909.8      | 27.88               | 28.50               | 1.153                  | 0.03             | 1.340                   | 1.546                   |

### <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) |
|----------|----------|--------------|---------------|----------|------|-------------|---------------------|---------------------|------------------------|------------------|-------------------------|-------------------------|
|          | WCDMA II | RMC 12.2Kbps | Front         | 0mm      | 9262 | 1852.4      | 21.70               | 22.00               | 1.072                  | 0.02             | 1.750                   | 1.875                   |
|          | WCDMA II | RMC 12.2Kbps | Front         | 0mm      | 9400 | 1880        | 21.46               | 22.00               | 1.132                  | 0.01             | 1.850                   | 2.095                   |
|          | WCDMA II | RMC 12.2Kbps | Front         | 0mm      | 9538 | 1907.6      | 21.49               | 22.00               | 1.125                  | 0.02             | 1.710                   | 1.923                   |
|          | WCDMA II | RMC 12.2Kbps | Back          | 0mm      | 9262 | 1852.4      | 21.70               | 22.00               | 1.072                  | -0.07            | 2.350                   | 2.518                   |
|          | WCDMA II | RMC 12.2Kbps | Back          | 0mm      | 9400 | 1880        | 21.46               | 22.00               | 1.132                  | -0.01            | 2.470                   | 2.797                   |
|          | WCDMA II | RMC 12.2Kbps | Back          | 0mm      | 9538 | 1907.6      | 21.49               | 22.00               | 1.125                  | -0.03            | 2.430                   | 2.733                   |
|          | WCDMA II | RMC 12.2Kbps | Right Side    | 0mm      | 9262 | 1852.4      | 22.78               | 24.00               | 1.324                  | -0.02            | 1.230                   | 1.629                   |
| 46       | WCDMA II | RMC 12.2Kbps | Bottom Side   | 0mm      | 9262 | 1852.4      | 21.70               | 22.00               | 1.072                  | -0.07            | 3.020                   | 3.236                   |
|          | WCDMA II | RMC 12.2Kbps | Bottom Side   | 0mm      | 9400 | 1880        | 21.46               | 22.00               | 1.132                  | -0.05            | 2.660                   | 3.012                   |
|          | WCDMA II | RMC 12.2Kbps | Bottom Side   | 0mm      | 9538 | 1907.6      | 21.49               | 22.00               | 1.125                  | -0.04            | 2.410                   | 2.710                   |
|          | WCDMA IV | RMC 12.2Kbps | Front         | 0mm      | 1413 | 1732.6      | 20.74               | 22.00               | 1.337                  | 0.05             | 1.830                   | 2.446                   |
|          | WCDMA IV | RMC 12.2Kbps | Front         | 0mm      | 1312 | 1712.4      | 20.72               | 22.00               | 1.343                  | 0.01             | 1.770                   | 2.377                   |
|          | WCDMA IV | RMC 12.2Kbps | Front         | 0mm      | 1513 | 1752.6      | 20.68               | 22.00               | 1.355                  | 0.01             | 1.840                   | 2.494                   |
|          | WCDMA IV | RMC 12.2Kbps | Back          | 0mm      | 1413 | 1732.6      | 20.74               | 22.00               | 1.337                  | 0                | 2.510                   | 3.355                   |
|          | WCDMA IV | RMC 12.2Kbps | Back          | 0mm      | 1312 | 1712.4      | 20.72               | 22.00               | 1.343                  | -0.03            | 2.320                   | 3.115                   |
|          | WCDMA IV | RMC 12.2Kbps | Back          | 0mm      | 1513 | 1752.6      | 20.68               | 22.00               | 1.355                  | -0.01            | 2.550                   | 3.456                   |
|          | WCDMA IV | RMC 12.2Kbps | Bottom Side   | 0mm      | 1413 | 1732.6      | 20.74               | 22.00               | 1.337                  | -0.09            | 2.600                   | 3.475                   |
|          | WCDMA IV | RMC 12.2Kbps | Bottom Side   | 0mm      | 1312 | 1712.4      | 20.72               | 22.00               | 1.343                  | -0.05            | 2.560                   | 3.437                   |
| 47       | WCDMA IV | RMC 12.2Kbps | Bottom Side   | 0mm      | 1513 | 1752.6      | 20.68               | 22.00               | 1.355                  | -0.02            | 2.640                   | 3.578                   |
|          | WCDMA V  | RMC 12.2Kbps | Front         | 0mm      | 4132 | 826.4       | 22.81               | 24.00               | 1.315                  | -0.04            | 1.800                   | 2.367                   |
|          | WCDMA V  | RMC 12.2Kbps | Front         | 0mm      | 4182 | 836.4       | 22.81               | 24.00               | 1.315                  | 0                | 1.850                   | 2.433                   |
|          | WCDMA V  | RMC 12.2Kbps | Front         | 0mm      | 4233 | 846.6       | 22.75               | 24.00               | 1.334                  | 0.04             | 1.910                   | 2.547                   |
|          | WCDMA V  | RMC 12.2Kbps | Back          | 0mm      | 4132 | 826.4       | 22.81               | 24.00               | 1.315                  | -0.09            | 1.800                   | 2.367                   |
|          | WCDMA V  | RMC 12.2Kbps | Back          | 0mm      | 4182 | 836.4       | 22.81               | 24.00               | 1.315                  | -0.06            | 1.870                   | 2.459                   |
| 48       | WCDMA V  | RMC 12.2Kbps | Back          | 0mm      | 4233 | 846.6       | 22.75               | 24.00               | 1.334                  | 0.11             | 1.930                   | 2.574                   |
|          | WCDMA V  | RMC 12.2Kbps | Bottom Side   | 0mm      | 4233 | 846.6       | 22.75               | 24.00               | 1.334                  | 0.05             | 1.400                   | 1.867                   |

**<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) |
|----------|-------------|----------|------------|---------|-----------|---------------|----------|--------|-------------|---------------------|---------------------|------------------------|------------------|-------------------------|-------------------------|
|          | LTE Band 2  | 20M      | QPSK       | 100     | 0         | Front         | 0mm      | 18700  | 1860        | 21.71               | 22.00               | 1.069                  | -0.04            | 2.210                   | 2.363                   |
|          | LTE Band 2  | 20M      | QPSK       | 50      | 0         | Back          | 0mm      | 18700  | 1860        | 21.84               | 22.00               | 1.038                  | 0.02             | 3.030                   | 3.144                   |
|          | LTE Band 2  | 20M      | QPSK       | 50      | 0         | Back          | 0mm      | 18900  | 1880        | 21.69               | 22.00               | 1.074                  | 0.1              | 3.120                   | 3.351                   |
| 49       | LTE Band 2  | 20M      | QPSK       | 50      | 0         | Back          | 0mm      | 19100  | 1900        | 21.73               | 22.00               | 1.064                  | 0.03             | 3.270                   | 3.480                   |
|          | LTE Band 2  | 20M      | QPSK       | 1       | 0         | Right Side    | 0mm      | 18700  | 1860        | 22.53               | 24.00               | 1.403                  | -0.03            | 1.280                   | 1.796                   |
|          | LTE Band 2  | 20M      | QPSK       | 100     | 0         | Bottom Side   | 0mm      | 18700  | 1860        | 21.71               | 22.00               | 1.069                  | -0.02            | 2.760                   | 2.951                   |
| 50       | LTE Band 5  | 10M      | QPSK       | 1       | 25        | Back          | 0mm      | 20525  | 836.5       | 22.87               | 24.00               | 1.297                  | -0.01            | 1.480                   | 1.920                   |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Front         | 0mm      | 21350  | 2560        | 22.22               | 22.50               | 1.067                  | 0.15             | 2.120                   | 2.261                   |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Front         | 0mm      | 20850  | 2510        | 22.13               | 22.50               | 1.089                  | -0.01            | 2.040                   | 2.221                   |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Front         | 0mm      | 21100  | 2535        | 22.03               | 22.50               | 1.114                  | 0                | 2.180                   | 2.429                   |
| 51       | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Back          | 0mm      | 21350  | 2560        | 22.22               | 22.50               | 1.067                  | -0.14            | 3.030                   | 3.232                   |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Back          | 0mm      | 20850  | 2510        | 22.13               | 22.50               | 1.089                  | -0.01            | 2.520                   | 2.744                   |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Back          | 0mm      | 21100  | 2535        | 22.03               | 22.50               | 1.114                  | -0.06            | 2.800                   | 3.120                   |
|          | LTE Band 7  | 20M      | QPSK       | 100     | 0         | Left Side     | 0mm      | 21350  | 2560        | 22.09               | 22.50               | 1.099                  | -0.04            | 2.170                   | 2.385                   |
|          | LTE Band 7  | 20M      | QPSK       | 100     | 0         | Bottom Side   | 0mm      | 21350  | 2560        | 22.09               | 22.50               | 1.099                  | 0.06             | 1.900                   | 2.088                   |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Front         | 0mm      | 132322 | 1745        | 22.05               | 22.50               | 1.109                  | 0.05             | 1.730                   | 1.919                   |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Front         | 0mm      | 132072 | 1720        | 21.94               | 22.50               | 1.138                  | 0                | 1.680                   | 1.911                   |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Front         | 0mm      | 132572 | 1770        | 21.94               | 22.50               | 1.138                  | 0.11             | 1.690                   | 1.923                   |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Back          | 0mm      | 132322 | 1745        | 22.05               | 22.50               | 1.109                  | -0.01            | 2.060                   | 2.285                   |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Back          | 0mm      | 132072 | 1720        | 21.94               | 22.50               | 1.138                  | -0.15            | 2.070                   | 2.355                   |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Back          | 0mm      | 132572 | 1770        | 21.94               | 22.50               | 1.138                  | -0.01            | 2.270                   | 2.582                   |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Bottom Side   | 0mm      | 132322 | 1745        | 22.05               | 22.50               | 1.109                  | 0.01             | 2.530                   | 2.806                   |
| 52       | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Bottom Side   | 0mm      | 132072 | 1720        | 21.94               | 22.50               | 1.138                  | -0.03            | 2.540                   | 2.890                   |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Bottom Side   | 0mm      | 132572 | 1770        | 21.94               | 22.50               | 1.138                  | -0.02            | 2.440                   | 2.776                   |

**<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) |
|----------|----------|---------------|---------------|----------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|-------------------------|-------------------------|
| 53       | WLAN5GHz | 802.11a 6Mbps | Back          | 0mm      | 48  | 5240        | 15.67               | 17.00               | 1.360                  | 98.28        | 1.018                     | -0.12            | 1.060                   | 1.467                   |
|          | WLAN5GHz | 802.11a 6Mbps | Front         | 0mm      | 64  | 5320        | 15.50               | 17.00               | 1.413                  | 98.28        | 1.018                     | -0.09            | 0.042                   | 0.060                   |
| 54       | WLAN5GHz | 802.11a 6Mbps | Back          | 0mm      | 64  | 5320        | 15.50               | 17.00               | 1.413                  | 98.28        | 1.018                     | -0.04            | 1.220                   | 1.754                   |
|          | WLAN5GHz | 802.11a 6Mbps | Right Side    | 0mm      | 64  | 5320        | 15.50               | 17.00               | 1.413                  | 98.28        | 1.018                     | 0.06             | 0.049                   | 0.070                   |
|          | WLAN5GHz | 802.11a 6Mbps | Top Side      | 0mm      | 64  | 5320        | 15.50               | 17.00               | 1.413                  | 98.28        | 1.018                     | -0.12            | 0.105                   | 0.151                   |
|          | WLAN5GHz | 802.11a 6Mbps | Front         | 0mm      | 100 | 5500        | 15.31               | 16.50               | 1.317                  | 98.28        | 1.018                     | -0.17            | 0.047                   | 0.063                   |
| 55       | WLAN5GHz | 802.11a 6Mbps | Back          | 0mm      | 100 | 5500        | 15.31               | 16.50               | 1.317                  | 98.28        | 1.018                     | 0.05             | 1.320                   | 1.769                   |
|          | WLAN5GHz | 802.11a 6Mbps | Right Side    | 0mm      | 100 | 5500        | 15.31               | 16.50               | 1.317                  | 98.28        | 1.018                     | 0.13             | 0.055                   | 0.074                   |
|          | WLAN5GHz | 802.11a 6Mbps | Top Side      | 0mm      | 100 | 5500        | 15.31               | 16.50               | 1.317                  | 98.28        | 1.018                     | -0.04            | 0.118                   | 0.158                   |
| 56       | WLAN5GHz | 802.11a 6Mbps | Back          | 0mm      | 165 | 5825        | 14.80               | 16.00               | 1.320                  | 98.28        | 1.018                     | -0.03            | 1.510                   | 2.029                   |
|          | WLAN5GHz | 802.11a 6Mbps | Back          | 0mm      | 149 | 5745        | 14.62               | 16.00               | 1.376                  | 98.28        | 1.018                     | 0.04             | 1.330                   | 1.862                   |
|          | WLAN5GHz | 802.11a 6Mbps | Back          | 0mm      | 157 | 5785        | 14.34               | 16.00               | 1.467                  | 98.28        | 1.018                     | -0.05            | 1.280                   | 1.912                   |

### 14.5 Repeated SAR Measurement

| 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) | Ratio | Reported 1g SAR (W/kg) |
|-----|------------|-------------------|---------------|----------|-------|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|-------|------------------------|
| 1st | WCDMA II   | RMC 12.2Kbps      | Bottom Side   | 5mm      | 9262  | 1852.4      | 17.55               | 18.00               | 1.109                  | -            | 1.000                     | -0.05            | 1.190                  | -     | 1.320                  |
| 2nd | WCDMA II   | RMC 12.2Kbps      | Bottom Side   | 5mm      | 9262  | 1852.4      | 17.55               | 18.00               | 1.109                  | -            | 1.000                     | 0.13             | 1.120                  | 1.06  | 1.242                  |
| 1st | WCDMA IV   | RMC 12.2Kbps      | Bottom Side   | 5mm      | 1513  | 1752.6      | 17.22               | 18.00               | 1.197                  | -            | 1.000                     | -0.02            | 1.150                  | -     | 1.376                  |
| 2nd | WCDMA IV   | RMC 12.2Kbps      | Bottom Side   | 5mm      | 1513  | 1752.6      | 17.22               | 18.00               | 1.197                  | -            | 1.000                     | -0.17            | 1.120                  | 1.03  | 1.340                  |
| 1st | WCDMA V    | RMC 12.2Kbps      | Back          | 5mm      | 4233  | 846.6       | 22.03               | 23.00               | 1.250                  | -            | 1.000                     | -0.03            | 1.090                  | -     | 1.363                  |
| 2nd | WCDMA V    | RMC 12.2Kbps      | Back          | 5mm      | 4233  | 846.6       | 22.03               | 23.00               | 1.250                  | -            | 1.000                     | 0.04             | 1.040                  | 1.05  | 1.300                  |
| 1st | LTE Band 7 | 20M_QPSK_1_0      | Back          | 5mm      | 21350 | 2560        | 21.17               | 22.00               | 1.211                  | -            | 1.000                     | -0.06            | 1.100                  | -     | 1.332                  |
| 2nd | LTE Band 7 | 20M_QPSK_1_0      | Back          | 5mm      | 21350 | 2560        | 21.17               | 22.00               | 1.211                  | -            | 1.000                     | -0.16            | 1.020                  | 1.08  | 1.235                  |
| 1st | WLAN2.4GHz | 802.11b 1Mbps     | Left Cheek    | 0mm      | 1     | 2412        | 17.55               | 19.00               | 1.396                  | 100          | 1.000                     | 0.07             | 0.935                  | -     | 1.306                  |
| 2nd | WLAN2.4GHz | 802.11b 1Mbps     | Left Cheek    | 0mm      | 1     | 2412        | 17.55               | 19.00               | 1.396                  | 100          | 1.000                     | 0.01             | 0.896                  | 1.04  | 1.251                  |
| 1st | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | 36    | 5180        | 14.80               | 15.00               | 1.048                  | 98.28        | 1.018                     | 0.13             | 1.170                  | -     | 1.249                  |
| 2nd | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | 36    | 5180        | 14.80               | 15.00               | 1.048                  | 98.28        | 1.018                     | -0.02            | 1.020                  | 1.15  | 1.088                  |
| 1st | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | 56    | 5280        | 15.17               | 17.00               | 1.526                  | 98.28        | 1.018                     | -0.03            | 0.888                  | -     | 1.379                  |
| 2nd | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | 56    | 5280        | 15.17               | 17.00               | 1.526                  | 98.28        | 1.018                     | -0.17            | 0.849                  | 1.05  | 1.319                  |
| 1st | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | 132   | 5660        | 13.99               | 14.00               | 1.003                  | 98.28        | 1.018                     | -0.1             | 1.270                  | -     | 1.297                  |
| 2nd | WLAN5GHz   | 802.11a 6Mbps     | Back          | 5mm      | 132   | 5660        | 13.99               | 14.00               | 1.003                  | 98.28        | 1.018                     | 0.13             | 1.180                  | 1.08  | 1.205                  |
| 1st | WLAN5GHz   | 802.11n-HT40 MCS0 | Back          | 5mm      | 151   | 5755        | 12.88               | 13.00               | 1.027                  | 96.32        | 1.038                     | -0.05            | 1.130                  | -     | 1.205                  |
| 2nd | WLAN5GHz   | 802.11n-HT40 MCS0 | Back          | 5mm      | 151   | 5755        | 12.88               | 13.00               | 1.027                  | 96.32        | 1.038                     | 0                | 1.050                  | 1.08  | 1.120                  |

| 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) | Ratio | Reported 10g SAR (W/kg) |
|-----|------------|---------------|---------------|----------|-------|-------------|---------------------|---------------------|------------------------|------------------|-------------------------|-------|-------------------------|
| 1st | WCDMA IV   | RMC 12.2Kbps  | Bottom Side   | 0mm      | 1513  | 1752.6      | 20.68               | 22.00               | 1.355                  | -0.02            | 2.640                   | -     | 3.578                   |
| 2nd | WCDMA IV   | RMC 12.2Kbps  | Bottom Side   | 0mm      | 1513  | 1752.6      | 20.68               | 22.00               | 1.355                  | -0.13            | 2.630                   | 1.00  | 3.564                   |
| 1st | LTE Band 2 | 20M_QPSK_50_0 | Back          | 0mm      | 19100 | 1900        | 21.73               | 22.00               | 1.064                  | 0.03             | 3.270                   | -     | 3.480                   |
| 2nd | LTE Band 2 | 20M_QPSK_50_0 | Back          | 0mm      | 19100 | 1900        | 21.92               | 22.00               | 1.019                  | 0.1              | 3.170                   | 1.08  | 3.229                   |
| 1st | LTE Band 7 | 20M_QPSK_1_0  | Back          | 0mm      | 21350 | 2560        | 22.22               | 22.50               | 1.067                  | -0.14            | 3.030                   | -     | 3.232                   |
| 2nd | LTE Band 7 | 20M_QPSK_1_0  | Back          | 0mm      | 21350 | 2560        | 22.22               | 22.50               | 1.067                  | -0.16            | 2.890                   | 1.05  | 3.082                   |

**General Note:**

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is  $\geq 0.8$ W/kg.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is  $\leq 1.2$  and the measured SAR  $< 1.45$ W/kg, only one repeated measurement is required.
3. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. The ratio is the difference in percentage between original and repeated *measured* SAR.
5. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

## **15. Simultaneous Transmission Analysis**

| NO. | Simultaneous Transmission Configurations | Portable Handset |           |         |                  |
|-----|------------------------------------------|------------------|-----------|---------|------------------|
|     |                                          | Head             | Body-worn | Hotspot | Product Specific |
| 1.  | WWAN + WLAN2.4GHz                        | Yes              | Yes       | Yes     | Yes              |
| 2.  | WWAN + Bluetooth                         | Yes              | Yes       | Yes     | Yes              |
| 3.  | WWAN + WLAN5GHz                          | Yes              | Yes       | Yes     | Yes              |

### **General Note:**

1. This device WLAN 2.4GHz / 5.2GHz / 5.8GHz supports Hotspot operation and Bluetooth support tethering applications.
2. WLAN and Bluetooth share the same antenna, and cannot transmit simultaneously.
3. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment.
4. The Scaled SAR summation is calculated based on the same configuration, test position and test separation distance to show compliance.
5. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
  - i) Scalar SAR summation  $< 1.6\text{W/kg}$ .
  - ii)  $\text{SPLSR} = (\text{SAR1} + \text{SAR2})^{1.5} / (\text{min. separation distance, mm})$ , 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  $\text{SPLSR} \leq 0.04$  for 1g,  $\text{SPLSR} \leq 0.1$  for 10g, simultaneously transmission SAR measurement is not necessary.
  - iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR  $< 1.6\text{W/kg}$  for 1g, and  $< 4.0$  for 10g.
  - v) The SPLSR calculated results please refer to section 15.5.

**15.1 Head Exposure Conditions**

| WWAN Band |             | Exposure Position | 1             | 2             | 3             | 4             | 1+2                  | 1+3                  | 1+4                  | SPLSR | Case No |
|-----------|-------------|-------------------|---------------|---------------|---------------|---------------|----------------------|----------------------|----------------------|-------|---------|
|           |             |                   | WWAN          | 2.4GHz WLAN   | 5GHz WLAN     | Bluetooth     | Summed 1g SAR (W/kg) | Summed 1g SAR (W/kg) | Summed 1g SAR (W/kg) |       |         |
|           |             |                   | 1g SAR (W/kg) | 1g SAR (W/kg) | 1g SAR (W/kg) | 1g SAR (W/kg) |                      |                      |                      |       |         |
| GSM       | GSM850      | Right Cheek       | 0.108         | 0.521         | 0.175         | 0.081         | 0.629                | 0.283                | 0.189                |       |         |
|           |             | Right Tilted      | 0.054         | 0.656         | 0.250         | 0.094         | 0.710                | 0.304                | 0.148                |       |         |
|           |             | Left Cheek        | 0.086         | 1.306         | 0.181         | 0.151         | 1.392                | 0.267                | 0.237                |       |         |
|           |             | Left Tilted       | 0.054         | 0.905         | 0.197         | 0.111         | 0.959                | 0.251                | 0.165                |       |         |
|           | GSM1900     | Right Cheek       | 0.077         | 0.521         | 0.175         | 0.081         | 0.598                | 0.252                | 0.158                |       |         |
|           |             | Right Tilted      | 0.042         | 0.656         | 0.250         | 0.094         | 0.698                | 0.292                | 0.136                |       |         |
|           |             | Left Cheek        | 0.167         | 1.306         | 0.181         | 0.151         | 1.473                | 0.348                | 0.318                |       |         |
|           |             | Left Tilted       | 0.022         | 0.905         | 0.197         | 0.111         | 0.927                | 0.219                | 0.133                |       |         |
| WCDMA     | WCDMA II    | Right Cheek       | 0.221         | 0.521         | 0.175         | 0.081         | 0.742                | 0.396                | 0.302                |       |         |
|           |             | Right Tilted      | 0.175         | 0.656         | 0.250         | 0.094         | 0.831                | 0.425                | 0.269                |       |         |
|           |             | Left Cheek        | 0.344         | 1.306         | 0.181         | 0.151         | 1.650                | 0.525                | 0.495                | 0.02  | Case 1  |
|           |             | Left Tilted       | 0.113         | 0.905         | 0.197         | 0.111         | 1.018                | 0.310                | 0.224                |       |         |
|           | WCDMA IV    | Right Cheek       | 0.145         | 0.521         | 0.175         | 0.081         | 0.666                | 0.320                | 0.226                |       |         |
|           |             | Right Tilted      | 0.090         | 0.656         | 0.250         | 0.094         | 0.746                | 0.340                | 0.184                |       |         |
|           |             | Left Cheek        | 0.250         | 1.306         | 0.181         | 0.151         | 1.556                | 0.431                | 0.401                |       |         |
|           |             | Left Tilted       | 0.085         | 0.905         | 0.197         | 0.111         | 0.990                | 0.282                | 0.196                |       |         |
|           | WCDMA V     | Right Cheek       | 0.313         | 0.521         | 0.175         | 0.081         | 0.834                | 0.488                | 0.394                |       |         |
|           |             | Right Tilted      | 0.155         | 0.656         | 0.250         | 0.094         | 0.811                | 0.405                | 0.249                |       |         |
|           |             | Left Cheek        | 0.253         | 1.306         | 0.181         | 0.151         | 1.559                | 0.434                | 0.404                |       |         |
|           |             | Left Tilted       | 0.159         | 0.905         | 0.197         | 0.111         | 1.064                | 0.356                | 0.270                |       |         |
| LTE       | LTE Band 2  | Right Cheek       | 0.200         | 0.521         | 0.175         | 0.081         | 0.721                | 0.375                | 0.281                |       |         |
|           |             | Right Tilted      | 0.175         | 0.656         | 0.250         | 0.094         | 0.831                | 0.425                | 0.269                |       |         |
|           |             | Left Cheek        | 0.173         | 1.306         | 0.181         | 0.151         | 1.479                | 0.354                | 0.324                |       |         |
|           |             | Left Tilted       | 0.095         | 0.905         | 0.197         | 0.111         | 1.000                | 0.292                | 0.206                |       |         |
|           | LTE Band 5  | Right Cheek       | 0.280         | 0.521         | 0.175         | 0.081         | 0.801                | 0.455                | 0.361                |       |         |
|           |             | Right Tilted      | 0.127         | 0.656         | 0.250         | 0.094         | 0.783                | 0.377                | 0.221                |       |         |
|           |             | Left Cheek        | 0.224         | 1.306         | 0.181         | 0.151         | 1.530                | 0.405                | 0.375                |       |         |
|           |             | Left Tilted       | 0.143         | 0.905         | 0.197         | 0.111         | 1.048                | 0.340                | 0.254                |       |         |
|           | LTE Band 7  | Right Cheek       | 0.425         | 0.521         | 0.175         | 0.081         | 0.946                | 0.600                | 0.506                |       |         |
|           |             | Right Tilted      | 0.438         | 0.656         | 0.250         | 0.094         | 1.094                | 0.688                | 0.532                |       |         |
|           |             | Left Cheek        | 0.541         | 1.306         | 0.181         | 0.151         | 1.847                | 0.722                | 0.692                | 0.03  | Case 2  |
|           |             | Left Tilted       | 0.217         | 0.905         | 0.197         | 0.111         | 1.122                | 0.414                | 0.328                |       |         |
|           | LTE Band 12 | Right Cheek       | 0.072         | 0.521         | 0.175         | 0.081         | 0.593                | 0.247                | 0.153                |       |         |
|           |             | Right Tilted      | 0.039         | 0.656         | 0.250         | 0.094         | 0.695                | 0.289                | 0.133                |       |         |
|           |             | Left Cheek        | 0.079         | 1.306         | 0.181         | 0.151         | 1.385                | 0.260                | 0.230                |       |         |
|           |             | Left Tilted       | 0.047         | 0.905         | 0.197         | 0.111         | 0.952                | 0.244                | 0.158                |       |         |
|           | LTE Band 66 | Right Cheek       | 0.117         | 0.521         | 0.175         | 0.081         | 0.638                | 0.292                | 0.198                |       |         |
|           |             | Right Tilted      | 0.090         | 0.656         | 0.250         | 0.094         | 0.746                | 0.340                | 0.184                |       |         |
|           |             | Left Cheek        | 0.268         | 1.306         | 0.181         | 0.151         | 1.574                | 0.449                | 0.419                |       |         |
|           |             | Left Tilted       | 0.100         | 0.905         | 0.197         | 0.111         | 1.005                | 0.297                | 0.211                |       |         |



**15.2 Hotspot Exposure Conditions**

| WWAN Band | Exposure Position | 1                        | 2                                  | 3                                | 4                             | 1+2                        | 1+3                        | 1+4                        | SPLSR | Case No | SPLSR   |
|-----------|-------------------|--------------------------|------------------------------------|----------------------------------|-------------------------------|----------------------------|----------------------------|----------------------------|-------|---------|---------|
|           |                   | WWAN<br>1g SAR<br>(W/kg) | 2.4GHz<br>WLAN<br>1g SAR<br>(W/kg) | 5GHz<br>WLAN<br>1g SAR<br>(W/kg) | Bluetooth<br>1g SAR<br>(W/kg) | Summed<br>1g SAR<br>(W/kg) | Summed<br>1g SAR<br>(W/kg) | Summed<br>1g SAR<br>(W/kg) |       |         |         |
| GSM       | GSM850            | Front                    | 0.562                              | 0.571                            | 0.055                         | 0.100                      | 1.133                      | 0.617                      | 0.662 |         |         |
|           |                   | Back                     | 0.692                              | 1.115                            | 1.379                         | 0.151                      | 1.807                      | 2.071                      | 0.843 | 0.02    | Case 3  |
|           |                   | Left side                | 0.106                              |                                  |                               |                            | 0.106                      | 0.106                      | 0.106 |         |         |
|           |                   | Right side               | 0.314                              | 0.433                            | 0.086                         | 0.058                      | 0.747                      | 0.400                      | 0.372 |         |         |
|           |                   | Top side                 |                                    | 0.740                            | 0.247                         | 0.082                      | 0.740                      | 0.247                      | 0.082 |         |         |
|           |                   | Bottom side              | 0.669                              |                                  |                               |                            | 0.669                      | 0.669                      | 0.669 |         |         |
|           | GSM1900           | Front                    | 1.036                              | 0.571                            | 0.055                         | 0.100                      | 1.607                      | 1.091                      | 1.136 | 0.01    | Case 4  |
|           |                   | Back                     | 1.287                              | 1.115                            | 1.379                         | 0.151                      | 2.402                      | 2.666                      | 1.438 | 0.02    | Case 4  |
|           |                   | Left side                | 0.107                              |                                  |                               |                            | 0.107                      | 0.107                      | 0.107 |         |         |
|           |                   | Right side               | 0.509                              | 0.433                            | 0.086                         | 0.058                      | 0.942                      | 0.595                      | 0.567 |         |         |
|           |                   | Top side                 |                                    | 0.740                            | 0.247                         | 0.082                      | 0.740                      | 0.247                      | 0.082 |         |         |
|           |                   | Bottom side              | 1.338                              |                                  |                               |                            | 1.338                      | 1.338                      | 1.338 |         |         |
| WCDMA     | WCDMA II          | Front                    | 1.014                              | 0.571                            | 0.055                         | 0.100                      | 1.585                      | 1.069                      | 1.114 |         |         |
|           |                   | Back                     | 1.301                              | 1.115                            | 1.379                         | 0.151                      | 2.416                      | 2.680                      | 1.452 | 0.04    | Case 5  |
|           |                   | Left side                | 0.070                              |                                  |                               |                            | 0.070                      | 0.070                      | 0.070 |         |         |
|           |                   | Right side               | 0.471                              | 0.433                            | 0.086                         | 0.058                      | 0.904                      | 0.557                      | 0.529 |         |         |
|           |                   | Top side                 |                                    | 0.740                            | 0.247                         | 0.082                      | 0.740                      | 0.247                      | 0.082 |         |         |
|           |                   | Bottom side              | 1.320                              |                                  |                               |                            | 1.320                      | 1.320                      | 1.320 |         |         |
|           | WCDMA IV          | Front                    | 1.172                              | 0.571                            | 0.055                         | 0.100                      | 1.743                      | 1.227                      | 1.272 | 0.03    | Case 6  |
|           |                   | Back                     | 1.342                              | 1.115                            | 1.379                         | 0.151                      | 2.457                      | 2.721                      | 1.493 | 0.03    | Case 6  |
|           |                   | Left side                | 0.046                              |                                  |                               |                            | 0.046                      | 0.046                      | 0.046 |         |         |
|           |                   | Right side               | 0.294                              | 0.433                            | 0.086                         | 0.058                      | 0.727                      | 0.380                      | 0.352 |         |         |
|           |                   | Top side                 |                                    | 0.740                            | 0.247                         | 0.082                      | 0.740                      | 0.247                      | 0.082 |         |         |
|           |                   | Bottom side              | 1.376                              |                                  |                               |                            | 1.376                      | 1.376                      | 1.376 |         |         |
|           | WCDMA V           | Front                    | 1.189                              | 0.571                            | 0.055                         | 0.100                      | 1.760                      | 1.244                      | 1.289 | 0.02    | Case 7  |
|           |                   | Back                     | 1.363                              | 1.115                            | 1.379                         | 0.151                      | 2.478                      | 2.742                      | 1.514 | 0.03    | Case 7  |
|           |                   | Left side                | 0.141                              |                                  |                               |                            | 0.141                      | 0.141                      | 0.141 |         |         |
|           |                   | Right side               | 0.455                              | 0.433                            | 0.086                         | 0.058                      | 0.888                      | 0.541                      | 0.513 |         |         |
|           |                   | Top side                 |                                    | 0.740                            | 0.247                         | 0.082                      | 0.740                      | 0.247                      | 0.082 |         |         |
|           |                   | Bottom side              | 1.055                              |                                  |                               |                            | 1.055                      | 1.055                      | 1.055 |         |         |
| LTE       | LTE Band 2        | Front                    | 1.026                              | 0.571                            | 0.055                         | 0.100                      | 1.597                      | 1.081                      | 1.126 | 0.01    | Case 8  |
|           |                   | Back                     | 1.337                              | 1.115                            | 1.379                         | 0.151                      | 2.452                      | 2.716                      | 1.488 | 0.04    | Case 8  |
|           |                   | Left side                | 0.068                              |                                  |                               |                            | 0.068                      | 0.068                      | 0.068 |         |         |
|           |                   | Right side               | 0.457                              | 0.433                            | 0.086                         | 0.058                      | 0.890                      | 0.543                      | 0.515 |         |         |
|           |                   | Top side                 |                                    | 0.740                            | 0.247                         | 0.082                      | 0.740                      | 0.247                      | 0.082 |         |         |
|           |                   | Bottom side              | 1.225                              |                                  |                               |                            | 1.225                      | 1.225                      | 1.225 |         |         |
|           | LTE Band 5        | Front                    | 1.074                              | 0.571                            | 0.055                         | 0.100                      | 1.645                      | 1.129                      | 1.174 | 0.01    | Case 9  |
|           |                   | Back                     | 1.349                              | 1.115                            | 1.379                         | 0.151                      | 2.464                      | 2.728                      | 1.500 | 0.03    | Case 9  |
|           |                   | Left side                | 0.095                              |                                  |                               |                            | 0.095                      | 0.095                      | 0.095 |         |         |
|           |                   | Right side               | 0.304                              | 0.433                            | 0.086                         | 0.058                      | 0.737                      | 0.390                      | 0.362 |         |         |
|           |                   | Top side                 |                                    | 0.740                            | 0.247                         | 0.082                      | 0.740                      | 0.247                      | 0.082 |         |         |
|           |                   | Bottom side              | 1.129                              |                                  |                               |                            | 1.129                      | 1.129                      | 1.129 |         |         |
|           | LTE Band 7        | Front                    | 0.884                              | 0.571                            | 0.055                         | 0.100                      | 1.455                      | 0.939                      | 0.984 |         |         |
|           |                   | Back                     | 1.332                              | 1.115                            | 1.379                         | 0.151                      | 2.447                      | 2.711                      | 1.483 | 0.03    | Case 10 |
|           |                   | Left side                | 0.961                              |                                  |                               |                            | 0.961                      | 0.961                      | 0.961 |         |         |
|           |                   | Right side               | 0.084                              | 0.433                            | 0.086                         | 0.058                      | 0.517                      | 0.170                      | 0.142 |         |         |
|           |                   | Top side                 |                                    | 0.740                            | 0.247                         | 0.082                      | 0.740                      | 0.247                      | 0.082 |         |         |
|           |                   | Bottom side              | 1.073                              |                                  |                               |                            | 1.073                      | 1.073                      | 1.073 |         |         |
|           | LTE Band 12       | Front                    | 0.760                              | 0.571                            | 0.055                         | 0.100                      | 1.331                      | 0.815                      | 0.860 |         |         |
|           |                   | Back                     | 0.893                              | 1.115                            | 1.379                         | 0.151                      | 2.008                      | 2.272                      | 1.044 | 0.02    | Case 11 |
|           |                   | Left side                | 0.236                              |                                  |                               |                            | 0.236                      | 0.236                      | 0.236 |         |         |
|           |                   | Right side               | 0.460                              | 0.433                            | 0.086                         | 0.058                      | 0.893                      | 0.546                      | 0.518 |         |         |
|           |                   | Top side                 |                                    | 0.740                            | 0.247                         | 0.082                      | 0.740                      | 0.247                      | 0.082 |         |         |
|           |                   | Bottom side              | 0.695                              |                                  |                               |                            | 0.695                      | 0.695                      | 0.695 |         |         |
|           | LTE Band 66       | Front                    | 1.054                              | 0.571                            | 0.055                         | 0.100                      | 1.625                      | 1.109                      | 1.154 | 0.01    | Case 12 |
|           |                   | Back                     | 1.313                              | 1.115                            | 1.379                         | 0.151                      | 2.428                      | 2.692                      | 1.464 | 0.03    | Case 12 |
|           |                   | Left side                | 0.065                              |                                  |                               |                            | 0.065                      | 0.065                      | 0.065 |         |         |
|           |                   | Right side               | 0.302                              | 0.433                            | 0.086                         | 0.058                      | 0.735                      | 0.388                      | 0.360 |         |         |
|           |                   | Top side                 |                                    | 0.740                            | 0.247                         | 0.082                      | 0.740                      | 0.247                      | 0.082 |         |         |
|           |                   | Bottom side              | 1.276                              |                                  |                               |                            | 1.276                      | 1.276                      | 1.276 |         |         |

**15.3 Body-Worn Accessory Exposure Conditions**

| WWAN Band |             | Exposure Position | 1                        | 2                                  | 3                                | 4                             | 1+2<br>Summed<br>1g SAR<br>(W/kg) | 1+3<br>Summed<br>1g SAR<br>(W/kg) | 1+4<br>Summed<br>1g SAR<br>(W/kg) | SPLSR | Case No |
|-----------|-------------|-------------------|--------------------------|------------------------------------|----------------------------------|-------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------|---------|
|           |             |                   | WWAN<br>1g SAR<br>(W/kg) | 2.4GHz<br>WLAN<br>1g SAR<br>(W/kg) | 5GHz<br>WLAN<br>1g SAR<br>(W/kg) | Bluetooth<br>1g SAR<br>(W/kg) |                                   |                                   |                                   |       |         |
| GSM       | GSM850      | Front             | 0.562                    | 0.571                              | 0.055                            | 0.100                         | 1.133                             | 0.617                             | 0.662                             |       |         |
|           |             | Back              | 0.692                    | 1.115                              | 1.379                            | 0.151                         | 1.807                             | 2.071                             | 0.843                             | 0.02  | Case 3  |
|           |             | Back with Headset | 0.692                    | 0.704                              | 1.330                            | 0.098                         | 1.396                             | 2.022                             | 0.790                             | 0.02  | Case 3  |
|           | GSM1900     | Front             | 1.036                    | 0.571                              | 0.055                            | 0.100                         | 1.607                             | 1.091                             | 1.136                             | 0.01  | Case 4  |
|           |             | Back              | 1.287                    | 1.115                              | 1.379                            | 0.151                         | 2.402                             | 2.666                             | 1.438                             | 0.02  | Case 4  |
|           |             | Back with Headset | 1.231                    | 0.704                              | 1.330                            | 0.098                         | 1.935                             | 2.561                             | 1.329                             | 0.02  | Case 4  |
| WCDMA     | WCDMA II    | Front             | 1.014                    | 0.571                              | 0.055                            | 0.100                         | 1.585                             | 1.069                             | 1.114                             |       |         |
|           |             | Back              | 1.301                    | 1.115                              | 1.379                            | 0.151                         | 2.416                             | 2.680                             | 1.452                             | 0.04  | Case 5  |
|           |             | Back with Headset | 1.206                    | 0.704                              | 1.330                            | 0.098                         | 1.910                             | 2.536                             | 1.304                             | 0.03  | Case 5  |
|           | WCDMA IV    | Front             | 1.172                    | 0.571                              | 0.055                            | 0.100                         | 1.743                             | 1.227                             | 1.272                             | 0.03  | Case 6  |
|           |             | Back              | 1.342                    | 1.115                              | 1.379                            | 0.151                         | 2.457                             | 2.721                             | 1.493                             | 0.03  | Case 6  |
|           |             | Back with Headset | 1.284                    | 0.704                              | 1.330                            | 0.098                         | 1.988                             | 2.614                             | 1.382                             | 0.03  | Case 6  |
|           | WCDMA V     | Front             | 1.189                    | 0.571                              | 0.055                            | 0.100                         | 1.760                             | 1.244                             | 1.289                             | 0.02  | Case 7  |
|           |             | Back              | 1.363                    | 1.115                              | 1.379                            | 0.151                         | 2.478                             | 2.742                             | 1.514                             | 0.03  | Case 7  |
|           |             | Back with Headset | 1.263                    | 0.704                              | 1.330                            | 0.098                         | 1.967                             | 2.593                             | 1.361                             | 0.03  | Case 7  |
| LTE       | LTE Band 2  | Front             | 1.026                    | 0.571                              | 0.055                            | 0.100                         | 1.597                             | 1.081                             | 1.126                             | 0.01  | Case 8  |
|           |             | Back              | 1.337                    | 1.115                              | 1.379                            | 0.151                         | 2.452                             | 2.716                             | 1.488                             | 0.04  | Case 8  |
|           |             | Back with Headset | 1.195                    | 0.704                              | 1.330                            | 0.098                         | 1.899                             | 2.525                             | 1.293                             | 0.03  | Case 8  |
|           | LTE Band 5  | Front             | 1.074                    | 0.571                              | 0.055                            | 0.100                         | 1.645                             | 1.129                             | 1.174                             | 0.01  | Case 9  |
|           |             | Back              | 1.349                    | 1.115                              | 1.379                            | 0.151                         | 2.464                             | 2.728                             | 1.500                             | 0.03  | Case 9  |
|           |             | Back with Headset | 1.336                    | 0.704                              | 1.330                            | 0.098                         | 2.040                             | 2.666                             | 1.434                             | 0.03  | Case 9  |
|           | LTE Band 7  | Front             | 0.884                    | 0.571                              | 0.055                            | 0.100                         | 1.455                             | 0.939                             | 0.984                             |       |         |
|           |             | Back              | 1.332                    | 1.115                              | 1.379                            | 0.151                         | 2.447                             | 2.711                             | 1.483                             | 0.03  | Case 10 |
|           |             | Back with Headset | 1.283                    | 0.704                              | 1.330                            | 0.098                         | 1.987                             | 2.613                             | 1.381                             | 0.03  | Case 10 |
|           | LTE Band 12 | Front             | 0.760                    | 0.571                              | 0.055                            | 0.100                         | 1.331                             | 0.815                             | 0.860                             |       |         |
|           |             | Back              | 0.893                    | 1.115                              | 1.379                            | 0.151                         | 2.008                             | 2.272                             | 1.044                             | 0.02  | Case 11 |
|           |             | Back with Headset | 0.893                    | 0.704                              | 1.330                            | 0.098                         | 1.597                             | 2.223                             | 0.991                             | 0.02  | Case 11 |
|           | LTE Band 66 | Front             | 1.054                    | 0.571                              | 0.055                            | 0.100                         | 1.625                             | 1.109                             | 1.154                             | 0.01  | Case 12 |
|           |             | Back              | 1.313                    | 1.115                              | 1.379                            | 0.151                         | 2.428                             | 2.692                             | 1.464                             | 0.03  | Case 12 |
|           |             | Back with Headset | 1.309                    | 0.704                              | 1.330                            | 0.098                         | 2.013                             | 2.639                             | 1.407                             | 0.03  | Case 12 |



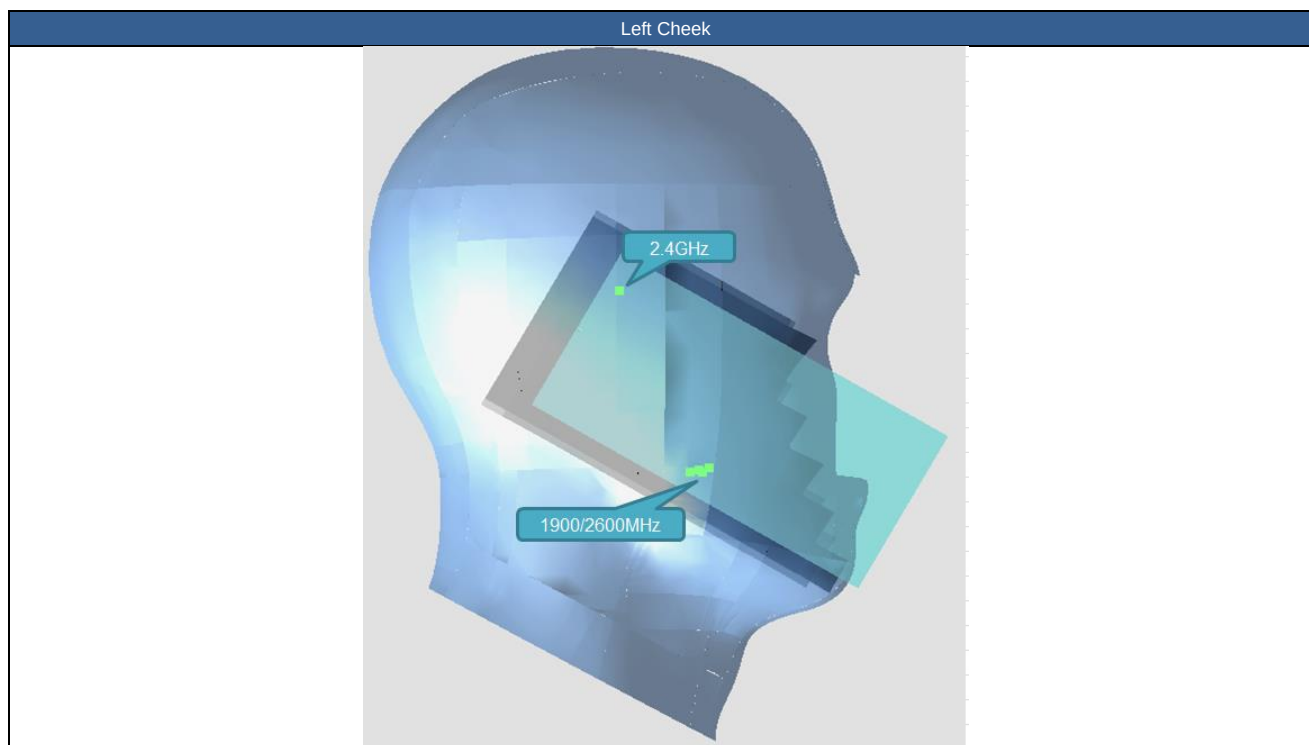
**15.4 Product Specific Exposure Conditions**

| WWAN Band |             | Exposure Position | 1                 | 4                 | 1+4<br>Summed<br>10g SAR (W/kg) | SPLSR | Case No |
|-----------|-------------|-------------------|-------------------|-------------------|---------------------------------|-------|---------|
|           |             |                   | WWAN              | 5GHz WLAN         |                                 |       |         |
|           |             |                   | 10g SAR<br>(W/kg) | 10g SAR<br>(W/kg) |                                 |       |         |
| GSM       | GSM1900     | Front             |                   | 0.063             | <b>0.063</b>                    |       |         |
|           |             | Back              | 2.351             | 2.029             | <b>4.380</b>                    | 0.07  | Case 13 |
|           |             | Left side         |                   |                   | <b>0.000</b>                    |       |         |
|           |             | Right side        |                   | 0.074             | <b>0.074</b>                    |       |         |
|           |             | Top side          |                   | 0.158             | <b>0.158</b>                    |       |         |
|           |             | Bottom side       | 2.185             |                   | <b>2.185</b>                    |       |         |
| WCDMA     | WCDMA II    | Front             | 2.095             | 0.063             | <b>2.158</b>                    |       |         |
|           |             | Back              | 2.797             | 2.029             | <b>4.826</b>                    | 0.08  | Case 14 |
|           |             | Left side         |                   |                   | <b>0.000</b>                    |       |         |
|           |             | Right side        | 1.629             | 0.074             | <b>1.703</b>                    |       |         |
|           |             | Top side          |                   | 0.158             | <b>0.158</b>                    |       |         |
|           |             | Bottom side       | 3.236             |                   | <b>3.236</b>                    |       |         |
|           | WCDMA IV    | Front             | 2.494             | 0.063             | <b>2.557</b>                    |       |         |
|           |             | Back              | 3.456             | 2.029             | <b>5.485</b>                    | 0.09  | Case 15 |
|           |             | Left side         |                   |                   | <b>0.000</b>                    |       |         |
|           |             | Right side        |                   | 0.074             | <b>0.074</b>                    |       |         |
|           |             | Top side          |                   | 0.158             | <b>0.158</b>                    |       |         |
|           |             | Bottom side       | 3.578             |                   | <b>3.578</b>                    |       |         |
|           | WCDMA V     | Front             | 2.547             | 0.063             | <b>2.610</b>                    |       |         |
|           |             | Back              | 2.574             | 2.029             | <b>4.603</b>                    | 0.07  | Case 16 |
|           |             | Left side         |                   |                   | <b>0.000</b>                    |       |         |
|           |             | Right side        |                   | 0.074             | <b>0.074</b>                    |       |         |
|           |             | Top side          |                   | 0.158             | <b>0.158</b>                    |       |         |
|           |             | Bottom side       | 1.867             |                   | <b>1.867</b>                    |       |         |
| LTE       | LTE Band 2  | Front             | 2.363             | 0.063             | <b>2.426</b>                    |       |         |
|           |             | Back              | 3.480             | 2.029             | <b>5.509</b>                    | 0.10  | Case 17 |
|           |             | Left side         |                   |                   | <b>0.000</b>                    |       |         |
|           |             | Right side        | 1.796             | 0.074             | <b>1.870</b>                    |       |         |
|           |             | Top side          |                   | 0.158             | <b>0.158</b>                    |       |         |
|           |             | Bottom side       | 2.951             |                   | <b>2.951</b>                    |       |         |
|           | LTE Band 5  | Front             |                   | 0.063             | <b>0.063</b>                    |       |         |
|           |             | Back              | 1.920             | 2.029             | <b>3.949</b>                    |       |         |
|           |             | Left side         |                   |                   | <b>0.000</b>                    |       |         |
|           |             | Right side        |                   | 0.074             | <b>0.074</b>                    |       |         |
|           |             | Top side          |                   | 0.158             | <b>0.158</b>                    |       |         |
|           |             | Bottom side       |                   |                   | <b>0.000</b>                    |       |         |
|           | LTE Band 7  | Front             | 2.429             | 0.063             | <b>2.492</b>                    |       |         |
|           |             | Back              | 3.232             | 2.029             | <b>5.261</b>                    | 0.09  | Case 18 |
|           |             | Left side         | 2.385             |                   | <b>2.385</b>                    |       |         |
|           |             | Right side        |                   | 0.074             | <b>0.074</b>                    |       |         |
|           |             | Top side          |                   | 0.158             | <b>0.158</b>                    |       |         |
|           |             | Bottom side       | 2.088             |                   | <b>2.088</b>                    |       |         |
|           | LTE Band 66 | Front             | 1.923             | 0.063             | <b>1.986</b>                    |       |         |
|           |             | Back              | 2.582             | 2.029             | <b>4.611</b>                    | 0.07  | Case 19 |
|           |             | Left side         |                   |                   | <b>0.000</b>                    |       |         |
|           |             | Right side        |                   | 0.074             | <b>0.074</b>                    |       |         |
|           |             | Top side          |                   | 0.158             | <b>0.158</b>                    |       |         |
|           |             | Bottom side       | 2.890             |                   | <b>2.890</b>                    |       |         |

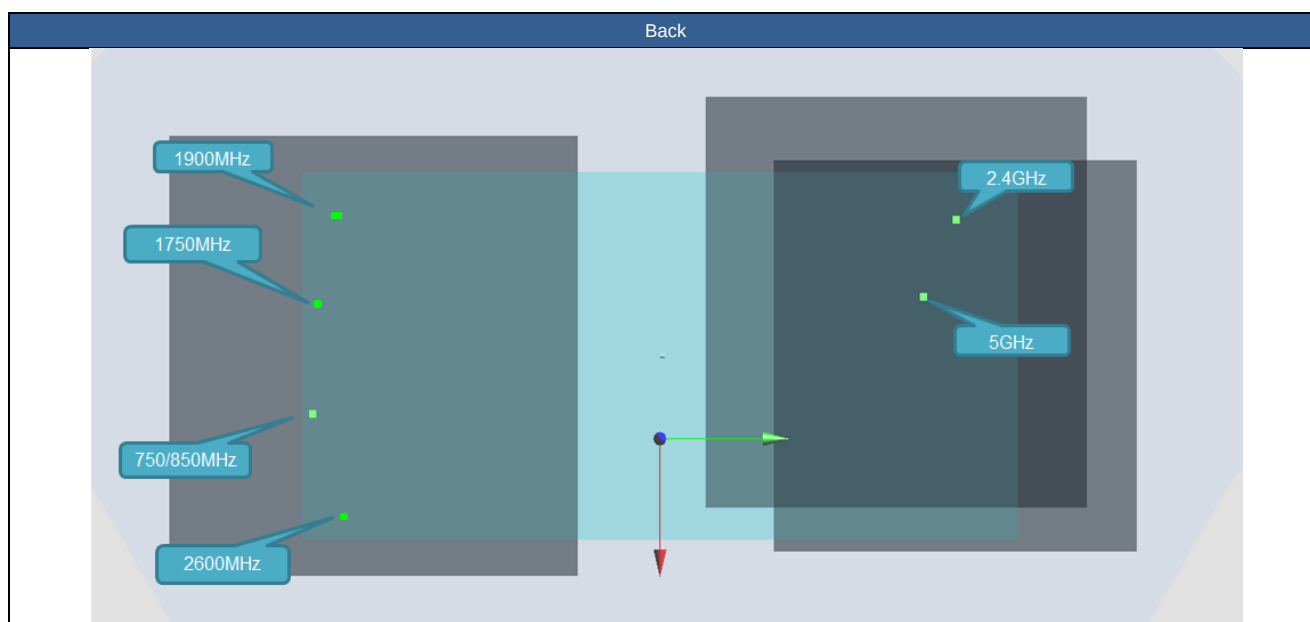
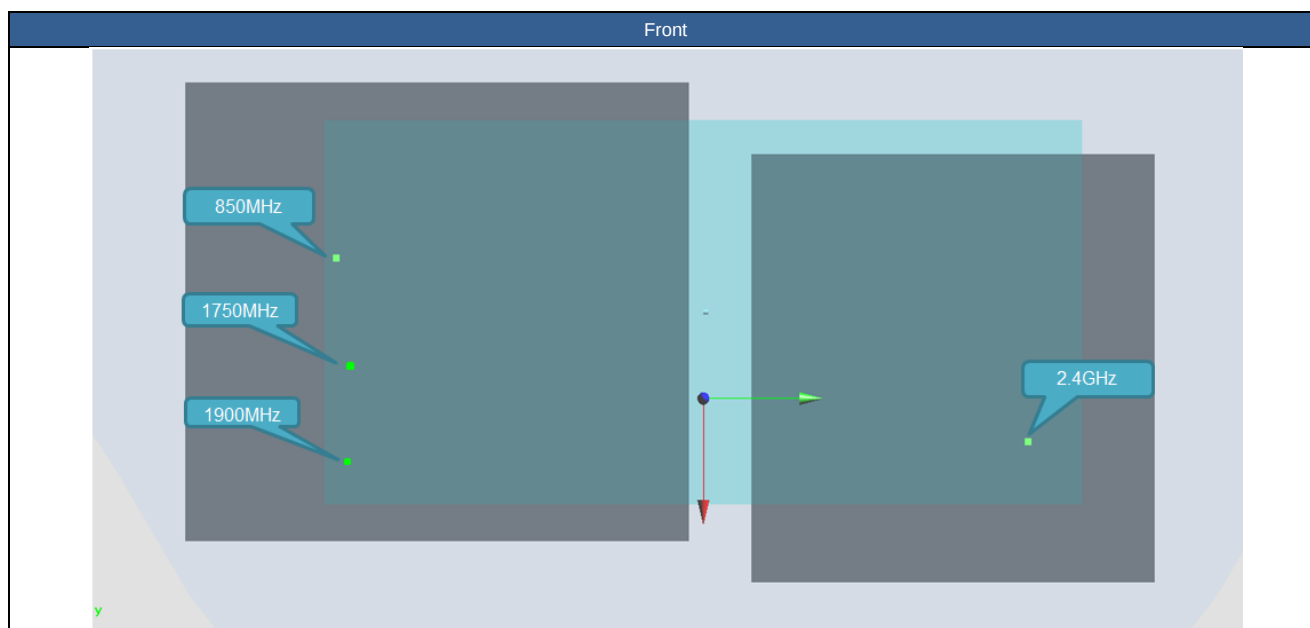
### 15.5 SPLSR Evaluation and Analysis

**General Note:**

1.  $SPLSR = (SAR_1 + SAR_2)^{1.5} / (\text{min. separation distance, mm})$ . If  $SPLSR \leq 0.04$  for 1g,  $SPLSR \leq 0.1$  for 10g, simultaneously transmission SAR measurement is not necessary
2. 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.



| Case 1 | Band        | Position   | 1g SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|--------|-------------|------------|---------------|----------|------------------------|--------|-------|------------------|-------------------|---------------|------------------|
|        |             |            |               |          | X                      | Y      | Z     |                  |                   |               |                  |
|        | WCDMA II    | Left Cheek | 0.344         | 0        | 51.66                  | -62.89 | -0.26 | 90.8             | 1.65              | 0.02          | Not required     |
|        | 2.4GHz WLAN |            | 1.306         | 0        | 14.13                  | 19.76  | -1.46 |                  |                   |               |                  |
| Case 2 | Band        | Position   | 1g SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|        |             |            |               |          | X                      | Y      | Z     |                  |                   |               |                  |
|        | LTE B7      | Left Cheek | 0.541         | 0        | 47.16                  | -60.89 | -2.59 | 87.2             | 1.85              | 0.03          | Not required     |
|        | 2.4GHz WLAN |            | 1.306         | 0        | 14.13                  | 19.76  | -1.46 |                  |                   |               |                  |



|        | Band        | Position          | 1g SAR (W/kg) | Gap (mm) | SAR peak location (mm) |       |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|--------|-------------|-------------------|---------------|----------|------------------------|-------|-------|------------------|-------------------|---------------|------------------|
|        |             |                   |               |          | X                      | Y     | Z     |                  |                   |               |                  |
| Case 3 | GSM850      | Back              | 0.692         | 5        | 7.2                    | -81.3 | -1.99 | 141.0            | 1.81              | 0.02          | Not required     |
|        | 2.4GHz WLAN |                   | 1.115         | 5        | -23.8                  | 56.2  | -2.05 |                  |                   |               |                  |
|        | GSM850      | Back              | 0.692         | 5        | 7.2                    | -81.3 | -1.99 | 140.1            | 2.07              | 0.02          | Not required     |
|        | 5GHz WLAN   |                   | 1.379         | 5        | -13.6                  | 57.2  | -1.21 |                  |                   |               |                  |
|        | GSM850      | Back with headset | 0.692         | 5        | 7.4                    | -82.4 | -1.99 | 145.3            | 1.40              | 0.01          | Not required     |
|        | 2.4GHz WLAN |                   | 0.704         | 5        | -24.4                  | 59.4  | -2.05 |                  |                   |               |                  |
|        | GSM850      | Back with headset | 0.692         | 5        | 7.4                    | -82.4 | -1.99 | 143.9            | 2.02              | 0.02          | Not required     |
|        | 5GHz WLAN   |                   | 1.33          | 5        | -7.2                   | 60.8  | -1.16 |                  |                   |               |                  |

|        | Band        | Position          | 1g SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|--------|-------------|-------------------|---------------|----------|------------------------|--------|-------|------------------|-------------------|---------------|------------------|
|        |             |                   |               |          | X                      | Y      | Z     |                  |                   |               |                  |
| Case 4 | GSM1900     | Front             | 1.036         | 5        | 9                      | -76.9  | -0.97 | 149.5            | 1.61              | 0.01          | Not required     |
|        | 2.4GHz WLAN |                   | 0.571         | 5        | 26.6                   | 71.6   | -1.8  |                  |                   |               |                  |
|        | GSM1900     | Back              | 0.692         | 5        | -34.5                  | -62.31 | -1.09 | 119.0            | 1.81              | 0.02          | Not required     |
|        | 2.4GHz WLAN |                   | 1.115         | 5        | -23.8                  | 56.2   | -2.05 |                  |                   |               |                  |
|        | GSM1900     | Back              | 0.692         | 5        | -34.5                  | -62.31 | -1.09 | 121.3            | 2.07              | 0.02          | Not required     |
|        | 5GHz WLAN   |                   | 1.379         | 5        | -13.6                  | 57.2   | -1.21 |                  |                   |               |                  |
|        | GSM1900     | Back with headset | 0.692         | 5        | -34.5                  | -62.31 | -1.07 | 122.1            | 1.40              | 0.01          | Not required     |
|        | 2.4GHz WLAN |                   | 0.704         | 5        | -24.4                  | 59.4   | -2.05 |                  |                   |               |                  |
|        | GSM1900     | Back with headset | 0.692         | 5        | -34.5                  | -62.31 | -1.07 | 126.1            | 2.02              | 0.02          | Not required     |
|        | 5GHz WLAN   |                   | 1.33          | 5        | -7.2                   | 60.8   | -1.16 |                  |                   |               |                  |
|        | Band        | Position          | 1g SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|        |             |                   |               |          | X                      | Y      | Z     |                  |                   |               |                  |
| Case 5 | WCDMA B2    | Back              | 1.301         | 5        | -36.9                  | -61.51 | -1.12 | 118.4            | 2.42              | 0.03          | Not required     |
|        | 2.4GHz WLAN |                   | 1.115         | 5        | -23.8                  | 56.2   | -2.05 |                  |                   |               |                  |
|        | WCDMA B2    | Back              | 1.301         | 5        | -36.9                  | -61.51 | -1.12 | 121.0            | 2.68              | 0.04          | Not required     |
|        | 5GHz WLAN   |                   | 1.379         | 5        | -13.6                  | 57.2   | -1.21 |                  |                   |               |                  |
|        | WCDMA B2    | Back with headset | 1.206         | 5        | -36.9                  | -61.51 | -1.11 | 121.6            | 1.91              | 0.02          | Not required     |
|        | 2.4GHz WLAN |                   | 0.704         | 5        | -24.4                  | 59.4   | -2.05 |                  |                   |               |                  |
|        | WCDMA B2    | Back with headset | 1.206         | 5        | -36.9                  | -61.51 | -1.11 | 125.9            | 2.54              | 0.03          | Not required     |
|        | 5GHz WLAN   |                   | 1.33          | 5        | -7.2                   | 60.8   | -1.16 |                  |                   |               |                  |
|        |             |                   |               |          |                        |        |       |                  |                   |               |                  |
|        | Band        | Position          | 1g SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|        |             |                   |               |          | X                      | Y      | Z     |                  |                   |               |                  |
| Case 6 | WCDMA B4    | Front             | 1.172         | 5        |                        |        |       | 76.4             | 1.74              | 0.03          | Not required     |
|        | 2.4GHz WLAN |                   | 0.571         | 5        | 26.6                   | 71.6   | -1.8  |                  |                   |               |                  |
|        | WCDMA B4    | Back              | 1.342         | 5        | -11.6                  | -78.2  | -0.93 | 135.0            | 2.46              | 0.03          | Not required     |
|        | 2.4GHz WLAN |                   | 1.115         | 5        | -23.8                  | 56.2   | -2.05 |                  |                   |               |                  |
|        | WCDMA B4    | Back              | 1.342         | 5        | -11.6                  | -78.2  | -0.93 | 135.4            | 2.72              | 0.03          | Not required     |
|        | 5GHz WLAN   |                   | 1.379         | 5        | -13.6                  | 57.2   | -1.21 |                  |                   |               |                  |
|        | WCDMA B4    | Back with headset | 1.284         | 5        | -11.6                  | -78.2  | -0.92 | 138.2            | 1.99              | 0.02          | Not required     |
|        | 2.4GHz WLAN |                   | 0.704         | 5        | -24.4                  | 59.4   | -2.05 |                  |                   |               |                  |
|        | WCDMA B4    | Back with headset | 1.284         | 5        | -11.6                  | -78.2  | -0.92 | 139.1            | 2.61              | 0.03          | Not required     |
|        | 5GHz WLAN   |                   | 1.33          | 5        | -7.2                   | 60.8   | -1.16 |                  |                   |               |                  |
|        | Band        | Position          | 1g SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|        |             |                   |               |          | X                      | Y      | Z     |                  |                   |               |                  |
| Case 7 | WCDMA B5    | Front             | 1.189         | 5        | -4.1                   | -79.7  | -2.03 | 154.4            | 1.76              | 0.02          | Not required     |
|        | 2.4GHz WLAN |                   | 0.571         | 5        | 26.6                   | 71.6   | -1.8  |                  |                   |               |                  |
|        | WCDMA B5    | Back              | 1.363         | 5        | 8.8                    | -81.3  | -1.98 | 141.3            | 2.48              | 0.03          | Not required     |
|        | 2.4GHz WLAN |                   | 1.115         | 5        | -23.8                  | 56.2   | -2.05 |                  |                   |               |                  |
|        | WCDMA B5    | Back              | 1.363         | 5        | 8.8                    | -81.3  | -1.98 | 140.3            | 2.74              | 0.03          | Not required     |
|        | 5GHz WLAN   |                   | 1.379         | 5        | -13.6                  | 57.2   | -1.21 |                  |                   |               |                  |
|        | WCDMA B5    | Back with headset | 1.263         | 5        | 8.8                    | -82.9  | -2    | 146.1            | 1.97              | 0.02          | Not required     |
|        | 2.4GHz WLAN |                   | 0.704         | 5        | -24.4                  | 59.4   | -2.05 |                  |                   |               |                  |
|        | WCDMA B5    | Back with headset | 1.263         | 5        | 8.8                    | -82.9  | -2    | 144.6            | 2.59              | 0.03          | Not required     |
|        | 5GHz WLAN   |                   | 1.33          | 5        | -7.2                   | 60.8   | -1.16 |                  |                   |               |                  |

|         | Band        | Position          | 1g SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|---------|-------------|-------------------|---------------|----------|------------------------|--------|-------|------------------|-------------------|---------------|------------------|
|         |             |                   |               |          | X                      | Y      | Z     |                  |                   |               |                  |
| Case 8  | LTE B2      | Front             | 1.026         | 5        | 9                      | -78.4  | -0.9  | 151.0            | 1.60              | 0.01          | Not required     |
|         | 2.4GHz WLAN |                   | 0.571         | 5        | 26.6                   | 71.6   | -1.8  |                  |                   |               |                  |
|         | LTE B2      | Back              | 1.337         | 5        | -37.1                  | -64.61 | -1.11 | 121.5            | 2.45              | 0.03          | Not required     |
|         | 2.4GHz WLAN |                   | 1.115         | 5        | -23.8                  | 56.2   | -2.05 |                  |                   |               |                  |
|         | LTE B2      | Back              | 1.337         | 5        | -37.1                  | -64.61 | -1.11 | 124.1            | 2.72              | 0.04          | Not required     |
|         | 5GHz WLAN   |                   | 1.379         | 5        | -13.6                  | 57.2   | -1.21 |                  |                   |               |                  |
|         | LTE B2      | Back with headset | 1.195         | 5        | -37.1                  | -61.21 | -1.12 | 121.3            | 1.90              | 0.02          | Not required     |
|         | 2.4GHz WLAN |                   | 0.704         | 5        | -24.4                  | 59.4   | -2.05 |                  |                   |               |                  |
|         | LTE B2      | Back with headset | 1.195         | 5        | -37.1                  | -61.21 | -1.12 | 125.6            | 2.53              | 0.03          | Not required     |
|         | 5GHz WLAN   |                   | 1.33          | 5        | -7.2                   | 60.8   | -1.16 |                  |                   |               |                  |
|         | Band        | Position          | 1g SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|         |             |                   |               |          | X                      | Y      | Z     |                  |                   |               |                  |
| Case 9  | LTE B5      | Front             | 1.074         | 5        | -2.4                   | -82.9  | -2.05 | 157.2            | 1.65              | 0.01          | Not required     |
|         | 2.4GHz WLAN |                   | 0.571         | 5        | 26.6                   | 71.6   | -1.8  |                  |                   |               |                  |
|         | LTE B5      | Back              | 1.349         | 5        | 8.8                    | -82.9  | -1.99 | 142.9            | 2.46              | 0.03          | Not required     |
|         | 2.4GHz WLAN |                   | 1.115         | 5        | -23.8                  | 56.2   | -2.05 |                  |                   |               |                  |
|         | LTE B5      | Back              | 1.349         | 5        | 8.8                    | -82.9  | -1.99 | 141.9            | 2.73              | 0.03          | Not required     |
|         | 5GHz WLAN   |                   | 1.379         | 5        | -13.6                  | 57.2   | -1.21 |                  |                   |               |                  |
|         | LTE B5      | Back with headset | 1.336         | 5        | 8.8                    | -82.9  | -1.99 | 146.1            | 2.04              | 0.02          | Not required     |
|         | 2.4GHz WLAN |                   | 0.704         | 5        | -24.4                  | 59.4   | -2.05 |                  |                   |               |                  |
|         | LTE B5      | Back with headset | 1.336         | 5        | 8.8                    | -82.9  | -1.99 | 144.6            | 2.67              | 0.03          | Not required     |
|         | 5GHz WLAN   |                   | 1.33          | 5        | -7.2                   | 60.8   | -1.16 |                  |                   |               |                  |
|         | Band        | Position          | 1g SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|         |             |                   |               |          | X                      | Y      | Z     |                  |                   |               |                  |
| Case 10 | LTE B7      | Back              | 1.332         | 5        | 28.4                   | -72.2  | -1.71 | 138.6            | 2.45              | 0.03          | Not required     |
|         | 2.4GHz WLAN |                   | 1.115         | 5        | -23.8                  | 56.2   | -2.05 |                  |                   |               |                  |
|         | LTE B7      | Back              | 1.332         | 5        | 28.4                   | -72.2  | -1.71 | 136.0            | 2.71              | 0.03          | Not required     |
|         | 5GHz WLAN   |                   | 1.379         | 5        | -13.6                  | 57.2   | -1.21 |                  |                   |               |                  |
|         | LTE B7      | Back with headset | 1.283         | 5        | 28.4                   | -72.2  | -1.7  | 141.8            | 1.99              | 0.02          | Not required     |
|         | 2.4GHz WLAN |                   | 0.704         | 5        | -24.4                  | 59.4   | -2.05 |                  |                   |               |                  |
|         | LTE B7      | Back with headset | 1.283         | 5        | 28.4                   | -72.2  | -1.7  | 137.7            | 2.61              | 0.03          | Not required     |
|         | 5GHz WLAN   |                   | 1.33          | 5        | -7.2                   | 60.8   | -1.16 |                  |                   |               |                  |
|         | 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 11 | LTE B12     | Back              | 0.893         | 5        | 10.7                   | -83.5  | -1.94 | 143.9            | 2.01              | 0.02          | Not required     |
|         | 2.4GHz WLAN |                   | 1.115         | 5        | -23.8                  | 56.2   | -2.05 |                  |                   |               |                  |
|         | LTE B12     | Back              | 0.893         | 5        | 10.7                   | -83.5  | -1.94 | 142.8            | 2.27              | 0.02          | Not required     |
|         | 5GHz WLAN   |                   | 1.379         | 5        | -13.6                  | 57.2   | -1.21 |                  |                   |               |                  |
|         | LTE B12     | Back with headset | 0.893         | 5        | 10.7                   | -83.5  | -1.94 | 147.1            | 1.60              | 0.01          | Not required     |
|         | 2.4GHz WLAN |                   | 0.704         | 5        | -24.4                  | 59.4   | -2.05 |                  |                   |               |                  |
|         | LTE B12     | Back with headset | 0.893         | 5        | 10.7                   | -83.5  | -1.94 | 145.4            | 2.22              | 0.02          | Not required     |
|         | 5GHz WLAN   |                   | 1.33          | 5        | -7.2                   | 60.8   | -1.16 |                  |                   |               |                  |

|         | Band        | Position          | 1g SAR (W/kg)  | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|---------|-------------|-------------------|----------------|----------|------------------------|--------|-------|------------------|-------------------|---------------|------------------|
|         |             |                   |                |          | X                      | Y      | Z     |                  |                   |               |                  |
| Case 12 | LTE B66     | Front             | 1.054          | 5        | 11.3                   | -79.7  | -0.99 | 152.1            | 1.63              | 0.01          | Not required     |
|         | 2.4GHz WLAN |                   | 0.571          | 5        | 26.6                   | 71.6   | -1.8  |                  |                   |               |                  |
|         | LTE B66     | Back              | 1.313          | 5        | -11.9                  | -78.1  | -1.08 | 134.8            | 2.43              | 0.03          | Not required     |
|         | 2.4GHz WLAN |                   | 1.115          | 5        | -23.8                  | 56.2   | -2.05 |                  |                   |               |                  |
|         | LTE B66     | Back              | 1.313          | 5        | -11.9                  | -78.1  | -1.08 | 135.3            | 2.69              | 0.03          | Not required     |
|         | 5GHz WLAN   |                   | 1.379          | 5        | -13.6                  | 57.2   | -1.21 |                  |                   |               |                  |
|         | LTE B66     | Back with headset | 1.309          | 5        | -10                    | -75    | -1    | 135.2            | 2.01              | 0.02          | Not required     |
|         | 2.4GHz WLAN |                   | 0.704          | 5        | -24.4                  | 59.4   | -2.05 |                  |                   |               |                  |
|         | LTE B66     | Back with headset | 1.309          | 5        | -10                    | -75    | -1    | 135.8            | 2.64              | 0.03          | Not required     |
|         | 5GHz WLAN   |                   | 1.33           | 5        | -7.2                   | 60.8   | -1.16 |                  |                   |               |                  |
| Case 13 | Band        | Position          | 10g SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|         |             |                   |                |          | X                      | Y      | Z     |                  |                   |               |                  |
|         | GSM1900     | Back              | 2.351          | 0        | -34.5                  | -62.31 | -1.09 | 125.7            | 4.38              | 0.07          | Not required     |
|         | 5GHz WLAN   |                   | 2.029          | 0        | -7.3                   | 60.4   | -1.22 |                  |                   |               |                  |
| Case 14 | Band        | Position          | 10g SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|         |             |                   |                |          | X                      | Y      | Z     |                  |                   |               |                  |
|         | WCDMA B2    | Back              | 2.797          | 0        | -37.1                  | -64.61 | -1.11 | 128.5            | 4.83              | 0.08          | Not required     |
|         | 5GHz WLAN   |                   | 2.029          | 0        | -7.3                   | 60.4   | -1.22 |                  |                   |               |                  |
| Case 15 | Band        | Position          | 10g SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|         |             |                   |                |          | X                      | Y      | Z     |                  |                   |               |                  |
|         | WCDMA B4    | Back              | 3.456          | 0        | -11.6                  | -78.2  | -0.93 | 138.7            | 5.49              | 0.09          | Not required     |
|         | 5GHz WLAN   |                   | 2.029          | 0        | -7.3                   | 60.4   | -1.22 |                  |                   |               |                  |
| Case 16 | Band        | Position          | 10g SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|         |             |                   |                |          | X                      | Y      | Z     |                  |                   |               |                  |
|         | WCDMA B5    | Back              | 2.574          | 0        | 8.8                    | -81.3  | -1.98 | 142.6            | 4.60              | 0.07          | Not required     |
|         | 5GHz WLAN   |                   | 2.029          | 0        | -7.3                   | 60.4   | -1.22 |                  |                   |               |                  |
| Case 17 | Band        | Position          | 10g 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      | Back              | 3.48           | 0        | -37.1                  | -64.61 | -1.11 | 128.5            | 5.51              | 0.10          | Not required     |
|         | 5GHz WLAN   |                   | 2.029          | 0        | -7.3                   | 60.4   | -1.22 |                  |                   |               |                  |
| Case 18 | Band        | Position          | 10g SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|         |             |                   |                |          | X                      | Y      | Z     |                  |                   |               |                  |
|         | LTE B7      | Back              | 3.232          | 0        | 28.4                   | -72.2  | -1.71 | 137.3            | 5.26              | 0.09          | Not required     |
|         | 5GHz WLAN   |                   | 2.029          | 0        | -7.3                   | 60.4   | -1.22 |                  |                   |               |                  |
| Case 19 | Band        | Position          | 10g SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|         |             |                   |                |          | X                      | Y      | Z     |                  |                   |               |                  |
|         | LTE B66     | Back              | 2.582          | 0        | -11.9                  | -78.1  | -1.08 | 138.6            | 4.61              | 0.07          | Not required     |
|         | 5GHz WLAN   |                   | 2.029          | 0        | -7.3                   | 60.4   | -1.22 |                  |                   |               |                  |



## **16. Supplemental tuner tests results**

### **General Note:**

1. The following test procedure was followed to demonstrate that the SAR results in this report represent the appropriate SAR test conditions. For bands with dynamic tuning implemented, SAR will be measured according to the required FCC SAR test procedures with the dynamic tuner active to allow the device to automatically tune to the antenna state for the respective RF exposure test configurations. Additional single point SAR time-sweep measurements will be evaluated for other tuner states to determine that the other tuner configurations would result in equivalent or lower SAR values. The additional tuner hardware has no influence to the antenna characteristics, other than impedance matching.
2. To evaluate all of the tuner states, the 144 tuner states are divided evenly among band, mode and exposure combinations so that at least one single point SAR measurement is measured in each configuration. Single point time-sweep measurements will be performed at the peak SAR location determined by the zoom scan of the configuration with the highest reported SAR for each combination. The tuner state will be established remotely so that the device is not moved for the entire series of single point SAR for the tuner states in each combination. The SAR probe will remain stationary at the same position throughout the entire series of single point measurements for each combination.
3. The device supports LTE B12/B17, B4/B66. Since the supported frequency span for LTE B17/B4 falls completely within the supported frequency span for LTE B12/B66, and both bands have the same target power and both LTE bands share the same transmission path, therefore standalone SAR was only assessed for LTE B12/B66. The single point SAR time-sweep measurements were treated independently for each supported ACL frequency band. For the LTE B17/B4 single point SAR measurement selected the highest measured SAR configuration and exposure condition of LTE B12/B66. And the number of required single point measurements at least 11 applies to the band.
4. The tuner state was established remotely through Wi-Fi so that the device is not moved for the entire series of single point SAR for the tuner states in each combination (band, mode, exposure conditions). The operational decryption contains more information about the design and implementation of the dynamic antenna tuning.

**16.1 Supplemental Head SAR results**

| Mode        | Service/<br>Modulation | Frequency<br>(MHz) | Channel | RB<br>Size | RB<br>Offset | Test<br>Position | Spacing | Measured<br>1g SAR<br>(W/kg) | Average Value of Time Sweep (W/kg) |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|-------------|------------------------|--------------------|---------|------------|--------------|------------------|---------|------------------------------|------------------------------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|             |                        |                    |         |            |              |                  |         |                              | Auto-Tune                          | 0      | 7     | 14    | 21    | 28    | 35    | 42    | 49    | 56    | 63    | 70    | 77    | 84    | 91    | 98    | 105   | 112   | 119   | 126   | 133   | 140   |
| WCDMA B2    | RMC12.2K               | 1852.4             | 92692   | N/A        | N/A          | Left Cheek       | 0 mm    | 0.26                         | 0.34                               | 0.046  | 0.215 | 0.158 | 0.241 | 0.273 | 0.206 | 0.321 | 0.266 | 0.211 | 0.312 | 0.339 | 0.334 | 0.268 | 0.177 | 0.32  | 0.332 | 0.324 | 0.326 | 0.321 | 0.321 | 0.307 |
| Mode        | Service/<br>Modulation | Frequency<br>(MHz) | Channel | RB<br>Size | RB<br>Offset | Test<br>Position | Spacing | Measured<br>1g SAR<br>(W/kg) | Average Value of Time Sweep (W/kg) |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|             |                        |                    |         |            |              |                  |         |                              | Auto-Tune                          | 1      | 8     | 15    | 22    | 29    | 36    | 43    | 50    | 57    | 64    | 71    | 78    | 85    | 92    | 99    | 106   | 113   | 120   | 127   | 134   | 141   |
| WCDMA B4    | RMC12.2K               | 1732.6             | 1413    | N/A        | N/A          | Left Cheek       | 0 mm    | 0.196                        | 0.261                              | 0.061  | 0.125 | 0.128 | 0.148 | 0.188 | 0.223 | 0.061 | 0.187 | 0.157 | 0.259 | 0.126 | 0.109 | 0.163 | 0.146 | 0.254 | 0.099 | 0.083 | 0.153 | 0.126 | 0.068 | 0.058 |
| Mode        | Service/<br>Modulation | Frequency<br>(MHz) | Channel | RB<br>Size | RB<br>Offset | Test<br>Position | Spacing | Measured<br>1g SAR<br>(W/kg) | Average Value of Time Sweep (W/kg) |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|             |                        |                    |         |            |              |                  |         |                              | Auto-Tune                          | 2      | 9     | 16    | 23    | 30    | 37    | 44    | 51    | 58    | 65    | 72    | 79    | 86    | 93    | 100   | 107   | 114   | 121   | 128   | 135   | 142   |
| WCDMA B5    | RMC12.2K               | 836.4              | 4182    | N/A        | N/A          | Left Cheek       | 0 mm    | 0.238                        | 0.275                              | 0.051  | 0.138 | 0.155 | 0.204 | 0.162 | 0.069 | 0.038 | 0.218 | 0.168 | 0.023 | 0.074 | 0.091 | 0.148 | 0.139 | 0.044 | 0.003 | 0.008 | 0.125 | 0.079 | 0.065 | 0.061 |
| Mode        | Service/<br>Modulation | Frequency<br>(MHz) | Channel | RB<br>Size | RB<br>Offset | Test<br>Position | Spacing | Measured<br>1g SAR<br>(W/kg) | Average Value of Time Sweep (W/kg) |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|             |                        |                    |         |            |              |                  |         |                              | Auto-Tune                          | 3      | 10    | 17    | 24    | 31    | 38    | 45    | 52    | 59    | 66    | 73    | 80    | 87    | 94    | 101   | 108   | 115   | 122   | 129   | 136   | 143   |
| LTE B2      | QPSK                   | 1880               | 18900   | 1          | 0            | Left Cheek       | 0 mm    | 0.155                        | 0.206                              | 0.091  | 0.17  | 0.143 | 0.189 | 0.204 | 0.202 | 0.089 | 0.202 | 0.182 | 0.163 | 0.09  | 0.204 | 0.2   | 0.188 | 0.198 | 0.122 | 0.182 | 0.061 | 0.204 | 0.198 | 0.189 |
| Mode        | Service/<br>Modulation | Frequency<br>(MHz) | Channel | RB<br>Size | RB<br>Offset | Test<br>Position | Spacing | Measured<br>1g SAR<br>(W/kg) | Average Value of Time Sweep (W/kg) |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|             |                        |                    |         |            |              |                  |         |                              | Auto-Tune                          | 4      | 11    | 18    | 25    | 32    | 39    | 46    | 53    | 60    | 67    | 74    | 81    | 88    | 95    | 102   | 109   | 116   | 123   | 130   | 137   |       |
| LTE B5      | QPSK                   | 836.5              | 20525   | 1          | 25           | Right Cheek      | 0 mm    | 0.216                        | 0.249                              | 0.066  | 0.177 | 0.173 | 0.021 | 0.148 | 0.098 | 0.118 | 0.065 | 0.188 | 0.144 | 0.012 | 0.018 | 0.193 | 0.137 | 0.147 | 0.022 | 0.056 | 0.03  | 0.076 | 0.001 |       |
| Mode        | Service/<br>Modulation | Frequency<br>(MHz) | Channel | RB<br>Size | RB<br>Offset | Test<br>Position | Spacing | Measured<br>1g SAR<br>(W/kg) | Average Value of Time Sweep (W/kg) |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|             |                        |                    |         |            |              |                  |         |                              | Auto-Tune                          | 5      | 12    | 19    | 26    | 33    | 40    | 47    | 54    | 61    | 68    | 75    | 82    | 89    | 96    | 103   | 110   | 117   | 124   | 131   | 138   |       |
| LTE B12/B17 | QPSK                   | 707.5              | 23095   | 1          | 25           | Left Cheek       | 0 mm    | 0.057                        | 0.0616                             | 0.0614 | 0.002 | 0.024 | 0.001 | 0.003 | 0.002 | 0.024 | 0.002 | 0.011 | 0.006 | 0.001 | 0.047 | 0.001 | 0.008 | 0.006 | 0.004 | 0.005 | 0.002 | 0.001 | 0.001 |       |
| Mode        | Service/<br>Modulation | Frequency<br>(MHz) | Channel | RB<br>Size | RB<br>Offset | Test<br>Position | Spacing | Measured<br>1g SAR<br>(W/kg) | Average Value of Time Sweep (W/kg) |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|             |                        |                    |         |            |              |                  |         |                              | Auto-Tune                          | 6      | 13    | 20    | 27    | 34    | 41    | 48    | 55    | 62    | 69    | 76    | 83    | 90    | 97    | 104   | 111   | 118   | 125   | 132   | 139   |       |
| LTE B4/B66  | QPSK                   | 1770               | 132572  | 1          | 0            | Left Cheek       | 0 mm    | 0.212                        | 0.274                              | 0.111  | 0.104 | 0.152 | 0.273 | 0.221 | 0.207 | 0.195 | 0.15  | 0.229 | 0.197 | 0.192 | 0.17  | 0.104 | 0.218 | 0.163 | 0.142 | 0.199 | 0.159 | 0.162 | 0.117 |       |

**16.2 Supplemental Body SAR results**

| Mode        | Service/Modulation | Frequency (MHz) | Channel | RB Size | RB Offset | Test Position | Spacing | Measured 1g SAR (W/kg) | Average Value of Time Sweep (W/kg) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|-------------|--------------------|-----------------|---------|---------|-----------|---------------|---------|------------------------|------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|             |                    |                 |         |         |           |               |         |                        | Auto-Tune                          | 0     | 7     | 14    | 21    | 28    | 35    | 42    | 49    | 56    | 63    | 70    | 77    | 84    | 91    | 98    | 105   | 112   | 119   | 126   | 133   | 140   |
| WCDMA B2    | RMC12.2K           | 1852.4          | 9262    | N/A     | N/A       | Bottom Side   | 5mm     | 1.19                   | 1.474                              | 0.199 | 0.932 | 0.684 | 1.044 | 1.183 | 0.893 | 1.391 | 1.153 | 0.914 | 1.352 | 1.469 | 1.447 | 1.161 | 0.767 | 1.387 | 1.439 | 1.404 | 1.413 | 1.391 | 1.392 | 1.330 |
| Mode        | Service/Modulation | Frequency (MHz) | Channel | RB Size | RB Offset | Test Position | Spacing | Measured 1g SAR (W/kg) | Average Value of Time Sweep (W/kg) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|             |                    |                 |         |         |           |               |         |                        | Auto-Tune                          | 1     | 8     | 15    | 22    | 29    | 36    | 43    | 50    | 57    | 64    | 71    | 78    | 85    | 92    | 99    | 106   | 113   | 120   | 127   | 134   | 141   |
| WCDMA B4    | RMC12.2K           | 1752.6          | 1513    | N/A     | N/A       | Bottom Side   | 5mm     | 1.15                   | 1.295                              | 0.302 | 0.620 | 0.635 | 0.734 | 0.932 | 1.106 | 0.302 | 0.927 | 0.778 | 1.285 | 0.625 | 0.540 | 0.808 | 0.724 | 1.260 | 0.491 | 0.411 | 0.759 | 0.625 | 0.337 | 0.287 |
| Mode        | Service/Modulation | Frequency (MHz) | Channel | RB Size | RB Offset | Test Position | Spacing | Measured 1g SAR (W/kg) | Average Value of Time Sweep (W/kg) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|             |                    |                 |         |         |           |               |         |                        | Auto-Tune                          | 2     | 9     | 16    | 23    | 30    | 37    | 44    | 51    | 58    | 65    | 72    | 79    | 86    | 93    | 100   | 107   | 114   | 121   | 128   | 135   | 142   |
| WCDMA B5    | RMC12.2K           | 846.6           | 4233    | N/A     | N/A       | Back          | 5mm     | 1.09                   | 1.287                              | 0.211 | 0.693 | 0.555 | 0.931 | 0.944 | 0.524 | 0.145 | 1.128 | 0.705 | 0.193 | 0.609 | 0.699 | 0.874 | 0.733 | 0.308 | 0.043 | 0.031 | 0.884 | 0.563 | 0.499 | 0.461 |
| Mode        | Service/Modulation | Frequency (MHz) | Channel | RB Size | RB Offset | Test Position | Spacing | Measured 1g SAR (W/kg) | Average Value of Time Sweep (W/kg) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|             |                    |                 |         |         |           |               |         |                        | Auto-Tune                          | 3     | 10    | 17    | 24    | 31    | 38    | 45    | 52    | 59    | 66    | 73    | 80    | 87    | 94    | 101   | 108   | 115   | 122   | 129   | 136   | 143   |
| LTE B2      | QPSK               | 1860            | 18700   | 100     | 0         | Bottom Side   | 5mm     | 1.13                   | 1.29                               | 0.549 | 0.941 | 0.818 | 1.058 | 1.235 | 1.259 | 0.599 | 1.217 | 1.113 | 1.201 | 0.852 | 1.289 | 1.201 | 1.149 | 1.276 | 1.045 | 1.134 | 0.393 | 1.243 | 1.144 | 1.056 |
| Mode        | Service/Modulation | Frequency (MHz) | Channel | RB Size | RB Offset | Test Position | Spacing | Measured 1g SAR (W/kg) | Average Value of Time Sweep (W/kg) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|             |                    |                 |         |         |           |               |         |                        | Auto-Tune                          | 4     | 11    | 18    | 25    | 32    | 39    | 46    | 53    | 60    | 67    | 74    | 81    | 88    | 95    | 102   | 109   | 116   | 123   | 130   | 137   |       |
| LTE B5      | QPSK               | 836.5           | 20525   | 1       | 25        | Back          | 5mm     | 1.04                   | 1.282                              | 0.341 | 0.985 | 0.809 | 0.065 | 0.881 | 0.619 | 0.623 | 0.195 | 1.015 | 0.824 | 0.097 | 0.075 | 1.088 | 0.795 | 0.827 | 0.162 | 0.337 | 0.091 | 0.515 | 0.012 |       |
| Mode        | Service/Modulation | Frequency (MHz) | Channel | RB Size | RB Offset | Test Position | Spacing | Measured 1g SAR (W/kg) | Average Value of Time Sweep (W/kg) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|             |                    |                 |         |         |           |               |         |                        | Auto-Tune                          | 5     | 12    | 19    | 26    | 33    | 40    | 47    | 54    | 61    | 68    | 75    | 82    | 89    | 96    | 103   | 110   | 117   | 124   | 131   | 138   |       |
| LTE B12/B17 | QPSK               | 707.5           | 23095   | 1       | 25        | Back          | 5mm     | 0.644                  | 0.815                              | 0.813 | 0.044 | 0.351 | 0.003 | 0.049 | 0.031 | 0.328 | 0.039 | 0.143 | 0.085 | 0.005 | 0.587 | 0.012 | 0.116 | 0.085 | 0.056 | 0.061 | 0.034 | 0.001 | 0.001 |       |
| Mode        | Service/Modulation | Frequency (MHz) | Channel | RB Size | RB Offset | Test Position | Spacing | Measured 1g SAR (W/kg) | Average Value of Time Sweep (W/kg) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|             |                    |                 |         |         |           |               |         |                        | Auto-Tune                          | 6     | 13    | 20    | 27    | 34    | 41    | 48    | 55    | 62    | 69    | 76    | 83    | 90    | 97    | 104   | 111   | 118   | 125   | 132   | 139   |       |
| LTE B4/B66  | QPSK               | 1720            | 132072  | 1       | 0         | Bottom Side   | 5mm     | 1.09                   | 1.115                              | 0.644 | 0.667 | 0.799 | 1.076 | 0.585 | 0.612 | 0.888 | 0.766 | 0.915 | 0.526 | 0.528 | 0.685 | 0.551 | 0.744 | 0.419 | 0.359 | 0.569 | 0.473 | 0.569 | 0.326 |       |

### <Additional Dynamic antenna tuning test>

According to 201904 TCBC workshop, if any single point SAR measurement result is  $> 1.2 \text{ W/kg}$  for a band/exposure condition combination set, all supported tuner states are evaluated with single point SAR measurements for the combination

| Mode      | Service/<br>Modulation | Frequency<br>(MHz) | Channel | RB<br>Size | RB<br>Offset | Test<br>Position | Spacing | Measured<br>1g SAR<br>(W/kg) | Average Value of Time Sweep (W/kg) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|-----------|------------------------|--------------------|---------|------------|--------------|------------------|---------|------------------------------|------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|           |                        |                    |         |            |              |                  |         |                              | Auto-Tune                          | 0     | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |
| WCDMA B2  | RMC12.2K               | 1852.4             | 9262    | N/A        | N/A          | Bottom Side      | 5mm     | 1.19                         | 1.474                              | 0.199 | 1.072 | 0.872 | 0.596 | 1.234 | 1.310 | 0.082 | 0.932 | 1.253 | 0.386 | 1.205 | 0.148 | 0.586 | 0.996 | 0.684 | 0.453 | 0.986 | 0.291 | 1.034 | 0.662 | 0.405 |
|           |                        |                    |         |            |              |                  |         |                              | 21                                 | 22    | 23    | 24    | 25    | 26    | 27    | 28    | 29    | 30    | 31    | 32    | 33    | 34    | 35    | 36    | 37    | 38    | 39    | 40    | 41    | 42    |
|           |                        |                    |         |            |              |                  |         |                              | 1.044                              | 0.167 | 0.082 | 1.472 | 1.158 | 0.853 | 1.396 | 1.183 | 0.377 | 1.301 | 1.072 | 1.148 | 0.893 | 1.082 | 0.482 | 0.996 | 1.253 | 0.158 | 0.662 | 1.391 |       |       |
|           |                        |                    |         |            |              |                  |         |                              | 43                                 | 44    | 45    | 46    | 47    | 48    | 49    | 50    | 51    | 52    | 53    | 54    | 55    | 56    | 57    | 58    | 59    | 60    | 61    | 62    | 63    | 64    |
|           |                        |                    |         |            |              |                  |         |                              | 1.396                              | 1.015 | 1.024 | 0.805 | 0.415 | 1.377 | 1.153 | 0.424 | 0.701 | 0.243 | 1.453 | 1.339 | 0.539 | 0.914 | 0.243 | 1.301 | 0.577 | 1.301 | 1.015 | 0.52  | 1.352 | 0.434 |
|           |                        |                    |         |            |              |                  |         |                              | 65                                 | 66    | 67    | 68    | 69    | 70    | 71    | 72    | 73    | 74    | 75    | 76    | 77    | 78    | 79    | 80    | 81    | 82    | 83    | 84    | 85    | 86    |
|           |                        |                    |         |            |              |                  |         |                              | 1.329                              | 0.71  | 1.243 | 0.996 | 1.291 | 1.469 | 0.434 | 0.939 | 1.082 | 1.424 | 0.453 | 1.186 | 1.447 | 1.101 | 0.701 | 0.967 | 1.015 | 0.91  | 0.358 | 1.161 | 1.253 | 1.196 |
|           |                        |                    |         |            |              |                  |         |                              | 87                                 | 88    | 89    | 90    | 91    | 92    | 93    | 94    | 95    | 96    | 97    | 98    | 99    | 100   | 101   | 102   | 103   | 104   | 105   | 106   | 107   | 108   |
|           |                        |                    |         |            |              |                  |         |                              | 0.796                              | 0.139 | 1.32  | 1.348 | 0.767 | 0.834 | 0.253 | 1.177 | 1.205 | 0.996 | 1.339 | 1.387 | 0.672 | 1.091 | 0.215 | 1.12  | 0.872 | 0.758 | 1.439 | 0.577 | 1.196 | 1.291 |
|           |                        |                    |         |            |              |                  |         |                              | 109                                | 110   | 111   | 112   | 113   | 114   | 115   | 116   | 117   | 118   | 119   | 120   | 121   | 122   | 123   | 124   | 125   | 126   | 127   | 128   | 129   | 130   |
|           |                        |                    |         |            |              |                  |         |                              | 1.015                              | 0.548 | 1.186 | 1.404 | 0.958 | 1.405 | 1.101 | 0.186 | 0.215 | 0.767 | 1.413 | 1.186 | 1.471 | 0.882 | 0.339 | 0.424 | 0.186 | 1.391 | 1.415 | 0.701 | 0.396 | 1.005 |
|           |                        |                    |         |            |              |                  |         |                              | 131                                | 132   | 133   | 134   | 135   | 136   | 137   | 138   | 139   | 140   | 141   | 142   | 143   |       |       |       |       |       |       |       |       |       |
| 0.548     | 0.377                  | 1.392              | 1.11    | 1.262      | 1.167        | 0.891            | 0.901   | 0.367                        | 1.330                              | 1.177 | 0.272 | 0.758 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Mode      | Service/<br>Modulation | Frequency<br>(MHz) | Channel | RB<br>Size | RB<br>Offset | Test<br>Position | Spacing | Measured<br>1g SAR<br>(W/kg) | Average Value of Time Sweep (W/kg) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Auto-Tune | 0                      | 1                  | 2       | 3          | 4            | 5                | 6       | 7                            | 8                                  | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |       |       |       |       |       |       |       |       |       |
| WCDMA B4  | RMC12.2K               | 1752.6             | 1513    | N/A        | N/A          | Bottom Side      | 5mm     | 1.15                         | 1.295                              | 0.579 | 0.302 | 0.883 | 0.188 | 1.103 | 0.245 | 0.826 | 0.56  | 0.620 | 0.874 | 0.864 | 0.579 | 0.226 | 0.264 | 0.531 | 0.635 | 0.626 | 1.026 | 0.607 | 0.255 | 1.045 |
|           |                        |                    |         |            |              |                  |         |                              | 21                                 | 22    | 23    | 24    | 25    | 26    | 27    | 28    | 29    | 30    | 31    | 32    | 33    | 34    | 35    | 36    | 37    | 38    | 39    | 40    | 41    | 42    |
|           |                        |                    |         |            |              |                  |         |                              | 0.131                              | 0.734 | 0.103 | 1.207 | 0.541 | 1.064 | 1.289 | 0.56  | 0.932 | 0.874 | 0.207 | 0.103 | 0.341 | 0.303 | 0.283 | 1.106 | 0.207 | 0.207 | 0.074 | 0.826 | 1.226 | 0.655 |
|           |                        |                    |         |            |              |                  |         |                              | 43                                 | 44    | 45    | 46    | 47    | 48    | 49    | 50    | 51    | 52    | 53    | 54    | 55    | 56    | 57    | 58    | 59    | 60    | 61    | 62    | 63    | 64    |
|           |                        |                    |         |            |              |                  |         |                              | 0.302                              | 1.274 | 0.131 | 0.112 | 0.312 | 0.483 | 0.807 | 0.927 | 0.379 | 1.236 | 1.007 | 1.055 | 0.731 | 0.674 | 0.778 | 0.131 | 0.483 | 0.893 | 0.769 | 0.636 | 0.236 | 1.285 |
|           |                        |                    |         |            |              |                  |         |                              | 65                                 | 66    | 67    | 68    | 69    | 70    | 71    | 72    | 73    | 74    | 75    | 76    | 77    | 78    | 79    | 80    | 81    | 82    | 83    | 84    | 85    | 86    |
|           |                        |                    |         |            |              |                  |         |                              | 0.998                              | 0.141 | 0.16  | 0.874 | 0.922 | 0.445 | 0.625 | 0.245 | 0.893 | 1.16  | 0.074 | 0.455 | 0.141 | 0.540 | 0.283 | 0.293 | 0.769 | 1.16  | 1.007 | 0.922 | 0.808 | 0.312 |
|           |                        |                    |         |            |              |                  |         |                              | 87                                 | 88    | 89    | 90    | 91    | 92    | 93    | 94    | 95    | 96    | 97    | 98    | 99    | 100   | 101   | 102   | 103   | 104   | 105   | 106   | 107   | 108   |
|           |                        |                    |         |            |              |                  |         |                              | 0.093                              | 1.283 | 0.703 | 1.283 | 0.598 | 0.724 | 0.312 | 0.95  | 1.198 | 0.455 | 1.007 | 1.036 | 1.260 | 0.607 | 0.712 | 0.703 | 1.274 | 1.207 | 0.75  | 0.491 | 0.312 | 0.445 |
|           |                        |                    |         |            |              |                  |         |                              | 109                                | 110   | 111   | 112   | 113   | 114   | 115   | 116   | 117   | 118   | 119   | 120   | 121   | 122   | 123   | 124   | 125   | 126   | 127   | 128   | 129   | 130   |
|           |                        |                    |         |            |              |                  |         |                              | 0.979                              | 0.636 | 0.474 | 0.788 | 0.411 | 0.217 | 0.217 | 1.188 | 0.969 | 0.941 | 0.264 | 0.759 | 0.845 | 0.817 | 0.693 | 1.045 | 0.55  | 1.007 | 0.625 | 0.76  | 0.922 | 0.598 |
|           |                        |                    |         |            |              |                  |         |                              | 131                                | 132   | 133   | 134   | 135   | 136   | 137   | 138   | 139   | 140   | 141   | 142   | 143   |       |       |       |       |       |       |       |       |       |
| 0.579     | 0.836                  | 0.912              | 0.337   | 0.798      | 0.112        | 0.874            | 0.569   | 0.398                        | 0.683                              | 0.287 | 1.112 | 0.312 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Mode      | Service/<br>Modulation | Frequency<br>(MHz) | Channel | RB<br>Size | RB<br>Offset | Test<br>Position | Spacing | Measured<br>1g SAR<br>(W/kg) | Average Value of Time Sweep (W/kg) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Auto-Tune | 0                      | 1                  | 2       | 3          | 4            | 5                | 6       | 7                            | 8                                  | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |       |       |       |       |       |       |       |       |       |
| WCDMA B5  | RMC12.2K               | 846.6              | 4233    | N/A        | N/A          | Back             | 5mm     | 1.09                         | 1.287                              | 0.837 | 1.037 | 0.211 | 0.523 | 0.609 | 0.809 | 1.009 | 0.761 | 0.266 | 0.693 | 0.904 | 0.818 | 0.228 | 0.552 | 0.39  | 1.228 | 0.555 | 1.133 | 0.237 | 0.466 | 1.19  |
|           |                        |                    |         |            |              |                  |         |                              | 21                                 | 22    | 23    | 24    | 25    | 26    | 27    | 28    | 29    | 30    | 31    | 32    | 33    | 34    | 35    | 36    | 37    | 38    | 39    | 40    | 41    | 42    |
|           |                        |                    |         |            |              |                  |         |                              | 0.133                              | 0.447 | 0.931 | 0.637 | 0.771 | 0.075 | 0.456 | 0.504 | 0.723 | 0.944 | 0.733 | 0.904 | 0.771 | 0.599 | 0.085 | 0.723 | 0.524 | 0.171 | 1.237 | 0.914 | 0.504 | 0.38  |
|           |                        |                    |         |            |              |                  |         |                              | 43                                 | 44    | 45    | 46    | 47    | 48    | 49    | 50    | 51    | 52    | 53    | 54    | 55    | 56    | 57    | 58    | 59    | 60    | 61    | 62    | 63    | 64    |
|           |                        |                    |         |            |              |                  |         |                              | 0.209                              | 0.145 | 0.237 | 0.561 | 0.266 | 0.104 | 0.618 | 0.18  | 1.128 | 1.278 | 0.304 | 0.399 | 0.199 | 1.199 | 0.361 | 0.705 | 0.723 | 0.114 | 0.799 | 0.809 | 0.828 | 0.733 |
|           |                        |                    |         |            |              |                  |         |                              | 65                                 | 66    | 67    | 68    | 69    | 70    | 71    | 72    | 73    | 74    | 75    | 76    | 77    | 78    | 79    | 80    | 81    | 82    | 83    | 84    | 85    | 86    |
|           |                        |                    |         |            |              |                  |         |                              | 0.193                              | 0.618 | 1.095 | 0.523 | 0.428 | 0.79  | 0.352 | 0.609 | 0.685 | 0.99  | 0.437 | 0.066 | 0.475 | 1.066 | 0.699 | 0.352 | 0.171 | 0.561 | 1.199 | 0.123 | 0.742 | 0.874 |
|           |                        |                    |         |            |              |                  |         |                              | 87                                 | 88    | 89    | 90    | 91    | 92    | 93    | 94    | 95    | 96    | 97    | 98    | 99    | 100   | 101   | 102   | 103   | 104   | 105   | 106   | 107   | 108   |
|           |                        |                    |         |            |              |                  |         |                              | 0.647                              | 0.209 | 0.152 | 0.885 | 0.437 | 0.475 | 0.733 | 1.18  | 0.628 | 0.218 | 0.428 | 0.856 | 0.352 | 0.308 | 0.456 | 0.999 | 0.837 | 0.752 | 1.228 | 1.19  | 0.043 | 0.933 |
|           |                        |                    |         |            |              |                  |         |                              | 109                                | 110   | 111   | 112   | 113   | 114   | 115   | 116   | 117   | 118   | 119   | 120   | 121   | 122   | 123   | 124   | 125   | 126   | 127   | 128   | 129   | 130   |
|           |                        |                    |         |            |              |                  |         |                              | 0.066                              | 1.266 | 0.866 | 1.066 | 1.009 | 0.031 | 0.304 | 0.275 | 0.228 | 0.447 | 1.047 | 1.066 | 0.884 | 0.228 | 0.799 | 0.656 | 0.942 | 0.085 | 0.704 | 0.563 | 1.228 | 0.818 |
|           |                        |                    |         |            |              |                  |         |                              | 131                                | 132   | 133   | 134   | 135   | 136   | 137   | 138   | 139   | 140   | 141   | 142   | 143   |       |       |       |       |       |       |       |       |       |
| 0.856     | 0.875                  | 0.199              | 0.447   | 0.499      | 1.009        | 0.618            | 0.447   | 1.095                        | 1.209                              | 0.533 | 0.461 | 1.161 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Mode      | Service/<br>Modulation | Frequency<br>(MHz) | Channel | RB<br>Size | RB<br>Offset | Test<br>Position | Spacing | Measured<br>1g SAR<br>(W/kg) | Average Value of Time Sweep (W/kg) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Auto-Tune | 0                      | 1                  | 2       | 3          | 4            | 5                | 6       | 7                            | 8                                  | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |       |       |       |       |       |       |       |       |       |
| LTE B2    | QPSK                   | 1860               | 18700   | 100        | 0            | Bottom Side      | 5mm     | 1.13                         | 1.29                               | 0.355 | 1.174 | 1.145 | 0.549 | 1.25  | 0.888 | 0.288 | 0.612 | 1.193 | 0.555 | 0.941 | 0.583 | 1.269 | 0.069 | 0.25  | 0.812 | 1.174 | 0.818 | 0.555 | 0.736 | 0.317 |
|           |                        |                    |         |            |              |                  |         |                              | 21                                 | 22    | 23    | 24    | 25    | 26    | 27    | 28    | 29    | 30    | 31    | 32    | 33    | 34    | 35    | 36    | 37    | 38    | 39    | 40    | 41    | 42    |
|           |                        |                    |         |            |              |                  |         |                              | 0.088                              | 0.888 | 1.088 | 1.058 | 0.098 | 1.107 | 0.698 | 1.221 | 1.269 | 1.098 | 1.235 | 1.05  | 0.621 | 0.631 | 1.221 | 1.269 | 0.698 | 1.259 | 0.793 | 1.183 | 1.036 | 1.117 |
|           |                        |                    |         |            |              |                  |         |                              | 43                                 | 44    | 45    | 46    | 47    | 48    | 49    | 50    | 51    | 52    | 53    | 54    | 55    | 56    | 57    | 58    | 59    | 60    | 61    | 62    | 63    | 64    |
|           |                        |                    |         |            |              |                  |         |                              | 0.907                              | 0.126 | 0.599 | 0.869 | 0.755 | 0.183 | 0.84  | 0.078 | 0.907 | 1.217 | 0.555 | 0.564 | 0.602 | 0.317 | 0.507 | 1.231 | 1.113 | 0.202 | 0.726 | 0.393 | 1.283 | 1.155 |
|           |                        |                    |         |            |              |                  |         |                              | 65                                 | 66    | 67    | 68    | 69    | 70    | 71    | 72    | 73    | 74    | 75    | 76    | 77    | 78    | 79    | 80    | 81    | 82    | 83    | 84    | 85    | 86    |
|           |                        |                    |         |            |              |                  |         |                              | 0.688                              | 1.201 | 0.688 | 0.659 | 1.126 | 1.269 | 0.25  | 0.488 | 0.852 | 0.117 | 0.088 | 0.745 | 0.878 | 0.917 | 1.212 | 1.289 | 0.145 | 1.05  | 0.831 | 0.821 | 0.298 | 1.231 |
|           |                        |                    |         |            |              |                  |         |                              | 87                                 | 88    | 89    | 90    | 91    | 92    | 93    | 94    | 95    | 96    | 97    | 98    | 99    | 100   | 101   | 102   | 103   | 104   | 105   | 106   | 107   | 108   |
|           |                        |                    |         |            |              |                  |         |                              | 1.201                              | 0.526 | 1.098 | 0.288 | 0.126 | 0.45  | 0.612 | 1.149 | 0.136 | 0.269 | 0.336 | 1.145 | 1.155 | 0.926 | 1.276 | 0.107 | 1.078 | 1.288 | 0.488 | 0.745 | 0.355 | 1.045 |
|           |                        |                    |         |            |              |                  |         |                              | 109                                | 110   | 111   | 112   | 113   | 114   | 115   | 116   | 117   | 118   | 119   | 120   | 121   | 122   | 123   | 124   | 125   | 126   | 127   | 128   | 129   | 130   |
|           |                        |                    |         |            |              |                  |         |                              | 0.831                              | 0.612 | 0.983 | 1.259 | 0.478 | 0.374 | 1.134 | 0.621 | 1.155 | 1.259 | 0.698 | 1.031 | 0.802 | 0.393 | 0.25  | 0.831 | 0.402 | 0.326 | 0.878 | 0.993 | 1.243 | 0.564 |
|           |                        |                    |         |            |              |                  |         |                              | 131                                | 132   | 133   | 134   | 135   | 136   | 137   | 138   | 139   | 140   | 141   | 142   | 143   |       |       |       |       |       |       |       |       |       |
| 0.326     | 1.126                  | 0.917              | 0.936   | 0.136      | 1.144        | 0.212            | 0.098   | 0.859                        | 0.488                              | 1.25  | 0.107 | 1.056 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |



| Mode       | Service/<br>Modulation | Frequency<br>(MHz) | Channel | RB<br>Size | RB<br>Offset | Test<br>Position | Spacing | Measured<br>1g SAR<br>(W/kg) | Average Value of Time Sweep (W/kg) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|------------|------------------------|--------------------|---------|------------|--------------|------------------|---------|------------------------------|------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
|            |                        |                    |         |            |              |                  |         |                              | Auto-Tune                          | 0     | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |  |
| LTE B5     | QPSK                   | 836.5              | 20525   | 1          | 25           | Back             | 5mm     | 1.04                         | 1.282                              | 1.223 | 0.394 | 0.223 | 0.27  | 0.341 | 1.118 | 1.109 | 0.08  | 0.423 | 0.89  | 1.109 | 0.985 | 0.213 | 0.347 | 0.87  | 0.49  | 0.832 | 0.242 | 0.809 | 1.223 | 0.099 |  |
|            |                        |                    |         |            |              |                  |         |                              | 21                                 | 22    | 23    | 24    | 25    | 26    | 27    | 28    | 29    | 30    | 31    | 32    | 33    | 34    | 35    | 36    | 37    | 38    | 39    | 40    | 41    | 42    |  |
|            |                        |                    |         |            |              |                  |         |                              | 0.461                              | 0.48  | 0.728 | 0.718 | 0.065 | 0.909 | 1.223 | 0.956 | 0.223 | 0.756 | 0.804 | 0.881 | 0.223 | 0.851 | 1.156 | 0.347 | 0.699 | 1.251 | 0.619 | 0.423 | 1.232 | 0.728 |  |
|            |                        |                    |         |            |              |                  |         |                              | 43                                 | 44    | 45    | 46    | 47    | 48    | 49    | 50    | 51    | 52    | 53    | 54    | 55    | 56    | 57    | 58    | 59    | 60    | 61    | 62    | 63    | 64    |  |
|            |                        |                    |         |            |              |                  |         |                              | 0.28                               | 0.337 | 0.328 | 0.623 | 0.08  | 0.756 | 0.099 | 0.47  | 0.499 | 1.275 | 0.195 | 1.109 | 0.413 | 1.147 | 0.547 | 0.728 | 0.261 | 1.015 | 0.556 | 0.509 | 0.451 | 1.09  |  |
|            |                        |                    |         |            |              |                  |         |                              | 65                                 | 66    | 67    | 68    | 69    | 70    | 71    | 72    | 73    | 74    | 75    | 76    | 77    | 78    | 79    | 80    | 81    | 82    | 83    | 84    | 85    | 86    |  |
|            |                        |                    |         |            |              |                  |         |                              | 0.366                              | 1.185 | 0.824 | 1.061 | 0.175 | 0.88  | 1.213 | 0.842 | 0.451 | 0.097 | 0.28  | 0.67  | 0.518 | 0.994 | 1.004 | 1.118 | 0.075 | 0.899 | 1.27  | 1.166 | 1.242 | 0.242 |  |
|            |                        |                    |         |            |              |                  |         |                              | 87                                 | 88    | 89    | 90    | 91    | 92    | 93    | 94    | 95    | 96    | 97    | 98    | 99    | 100   | 101   | 102   | 103   | 104   | 105   | 106   | 107   | 108   |  |
|            |                        |                    |         |            |              |                  |         |                              | 0.594                              | 1.088 | 0.518 | 0.966 | 1.042 | 0.642 | 1.09  | 0.518 | 0.795 | 0.28  | 0.109 | 0.642 | 1.213 | 0.556 | 0.575 | 0.827 | 1.166 | 0.956 | 0.49  | 1.032 | 0.709 | 0.928 |  |
|            |                        |                    |         |            |              |                  |         |                              | 109                                | 110   | 111   | 112   | 113   | 114   | 115   | 116   | 117   | 118   | 119   | 120   | 121   | 122   | 123   | 124   | 125   | 126   | 127   | 128   | 129   | 130   |  |
|            |                        |                    |         |            |              |                  |         |                              | 0.162                              | 0.728 | 1.051 | 0.899 | 0.832 | 0.918 | 0.47  | 0.337 | 0.27  | 0.585 | 0.661 | 0.242 | 0.947 | 0.47  | 0.091 | 0.29  | 0.556 | 0.47  | 0.432 | 0.937 | 0.347 | 0.515 |  |
|            |                        |                    |         |            |              |                  |         |                              | 131                                | 132   | 133   | 134   | 135   | 136   | 137   | 138   | 139   | 140   | 141   | 142   | 143   |       |       |       |       |       |       |       |       |       |  |
|            |                        |                    |         |            |              |                  |         |                              | 0.413                              | 0.137 | 0.718 | 0.651 | 0.623 | 1.166 | 0.012 | 0.585 | 1.175 | 0.775 | 0.604 | 0.518 | 0.985 |       |       |       |       |       |       |       |       |       |  |
| Mode       | Service/<br>Modulation | Frequency<br>(MHz) | Channel | RB<br>Size | RB<br>Offset | Test<br>Position | Spacing | Measured<br>1g SAR<br>(W/kg) | Average Value of Time Sweep (W/kg) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|            |                        |                    |         |            |              |                  |         |                              | Auto-Tune                          | 0     | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    |  |
| LTE B4/B66 | QPSK                   | 1720               | 132072  | 1          | 0            | Bottom Side      | 5mm     | 1.09                         | 1.115                              | 1.065 | 0.827 | 0.608 | 0.799 | 0.875 | 0.408 | 0.644 | 0.675 | 0.189 | 0.865 | 0.227 | 0.494 | 0.246 | 0.667 | 0.523 | 0.38  | 1.037 | 0.675 | 0.361 | 0.627 | 0.799 |  |
|            |                        |                    |         |            |              |                  |         |                              | 21                                 | 22    | 23    | 24    | 25    | 26    | 27    | 28    | 29    | 30    | 31    | 32    | 33    | 34    | 35    | 36    | 37    | 38    | 39    | 40    | 41    | 42    |  |
|            |                        |                    |         |            |              |                  |         |                              | 0.38                               | 0.237 | 1.094 | 1.113 | 0.57  | 0.837 | 1.076 | 0.123 | 0.084 | 0.265 | 0.199 | 0.599 | 0.37  | 0.585 | 0.475 | 0.675 | 1.065 | 0.856 | 0.113 | 0.103 | 0.612 | 0.627 |  |
|            |                        |                    |         |            |              |                  |         |                              | 43                                 | 44    | 45    | 46    | 47    | 48    | 49    | 50    | 51    | 52    | 53    | 54    | 55    | 56    | 57    | 58    | 59    | 60    | 61    | 62    | 63    | 64    |  |
|            |                        |                    |         |            |              |                  |         |                              | 0.913                              | 0.589 | 0.732 | 0.475 | 0.732 | 0.888 | 0.98  | 0.256 | 0.875 | 0.732 | 0.999 | 0.123 | 0.766 | 0.123 | 0.427 | 0.675 | 0.218 | 0.723 | 0.751 | 0.915 | 0.523 | 0.542 |  |
|            |                        |                    |         |            |              |                  |         |                              | 65                                 | 66    | 67    | 68    | 69    | 70    | 71    | 72    | 73    | 74    | 75    | 76    | 77    | 78    | 79    | 80    | 81    | 82    | 83    | 84    | 85    | 86    |  |
|            |                        |                    |         |            |              |                  |         |                              | 0.884                              | 0.389 | 0.284 | 0.284 | 0.526 | 0.065 | 0.703 | 0.094 | 0.399 | 0.484 | 0.094 | 0.528 | 0.551 | 0.837 | 0.056 | 0.094 | 0.399 | 0.323 | 0.685 | 0.275 | 0.57  | 1.094 |  |
|            |                        |                    |         |            |              |                  |         |                              | 87                                 | 88    | 89    | 90    | 91    | 92    | 93    | 94    | 95    | 96    | 97    | 98    | 99    | 100   | 101   | 102   | 103   | 104   | 105   | 106   | 107   | 108   |  |
|            |                        |                    |         |            |              |                  |         |                              | 0.961                              | 0.97  | 0.37  | 0.551 | 0.665 | 0.884 | 0.189 | 0.532 | 0.465 | 0.056 | 0.744 | 0.723 | 0.799 | 1.065 | 0.799 | 1.084 | 1.037 | 0.419 | 1.037 | 1.027 | 0.103 | 0.884 |  |
|            |                        |                    |         |            |              |                  |         |                              | 109                                | 110   | 111   | 112   | 113   | 114   | 115   | 116   | 117   | 118   | 119   | 120   | 121   | 122   | 123   | 124   | 125   | 126   | 127   | 128   | 129   | 130   |  |
|            |                        |                    |         |            |              |                  |         |                              | 0.846                              | 0.875 | 0.359 | 0.561 | 0.094 | 0.818 | 0.323 | 0.542 | 0.751 | 0.569 | 0.551 | 0.37  | 0.484 | 0.961 | 0.351 | 0.913 | 0.473 | 1.094 | 0.694 | 0.523 | 0.399 | 0.275 |  |
|            |                        |                    |         |            |              |                  |         |                              | 131                                | 132   | 133   | 134   | 135   | 136   | 137   | 138   | 139   | 140   | 141   | 142   | 143   |       |       |       |       |       |       |       |       |       |  |
|            |                        |                    |         |            |              |                  |         |                              | 1.101                              | 0.569 | 0.97  | 0.77  | 0.161 | 1.027 | 0.732 | 0.751 | 0.326 | 0.627 | 0.846 | 0.38  | 0.932 |       |       |       |       |       |       |       |       |       |  |

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## **17. 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 and highest measured 10-g SAR is less 3.75W/kg. Therefore, the measurement uncertainty table is not required in this report.

## **18. References**

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
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- [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
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- [11] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.
- [12] FCC KDB 941225 D07 v01r02, " SAR Evaluation Procedures for UMPC Mini-Tablet Devices", Oct 2015.
- [13] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
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